United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Purdue University Agricultural Experiment Station and the Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation

Soil Survey of Delaware County, Indiana

How To Use This Soil Survey

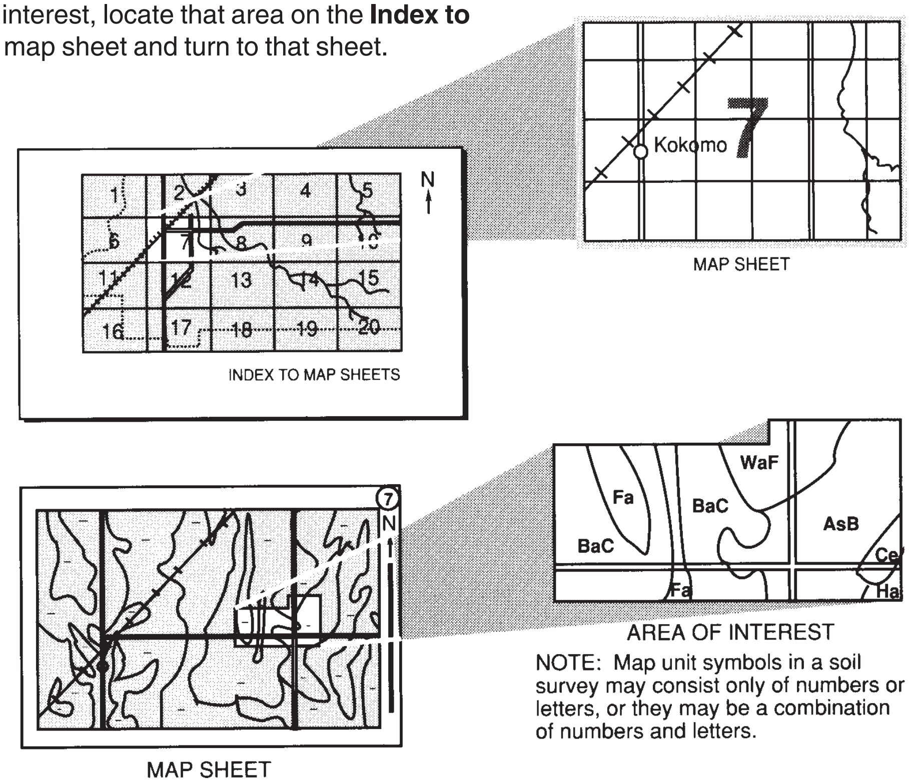
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture, Natural Resources Conservation Service (formerly the Soil Conservation Service); the Agricultural Experiment Stations; and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1994. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the county subset in 1997. This survey was made cooperatively by the Natural Resources Conservation Service; the Purdue University Agricultural Experiment Station; and the Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation. This soil survey update is part of the technical assistance provided to the Delaware County Soil and Water Conservation District.

Cover: A grassed waterway in a wheat field in an area of Glynwood silt loam, 1 to 4 percent slopes, eroded, and Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2004

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Jane Hardisty
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Delaware County, Indiana

By Gary R. Struben, Natural Resources Conservation Service

Fieldwork by Scot A. Haley, Dena L. Marshall, Shane L. McBurnett, Travis Neely, Neil T. Patterson, Donald R. Ruesch, and Gary R. Struben, Natural Resources Conservation Service

Original field work by Kelso K. Huffman, Paul McCarter, Jr., and Gordon K. Tanaka, Soil Conservation Service

United States Department Of Agriculture, Natural Resources Conservation Service, in cooperation with
the Purdue University Agricultural Experiment Station and the Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation

DELAWARE COUNTY is in the east-central part of Indiana (fig. 1). It has an area of 253,459 acres, or about 396 square miles. The county extends about 21 miles from north to south and 19 miles from east to west. It is located in the second tier of counties west of the Ohio State line. Delaware County is bordered on the north by Grant and Blackford Counties, on the east by Jay and Randolph Counties, on the south by Henry County, and on the west by Madison County. Muncie is the county seat and the largest city in the county. In 2000, the population of Muncie was 67,430 and the total population of Delaware County was 118,769 (USDC, 2000).

Farming and manufacturing are important sources of income in Delaware County. About 63 percent of the land is used for cropland, about 2 percent is used for hay and pasture, about 2 percent is used for forestland, and the remaining 33 percent is idle, urban land, or used for wildlife habitat or recreation. A part of this survey gives information on nonfarm uses of soils. The areas around cities and towns have been annexed, and the land use is being changed. Some areas lend themselves to urban development and have few limitations. Other areas, however, have so many limitations that nonfarm uses are questionable.

This soil survey updates the survey of Delaware County made in 1972 (Huffman, 1972). It provides additional information and has larger maps, which show the soils in greater detail. The first soil survey of Delaware County was issued in 1915 (Hurst and Grimes, 1915), thus making this the third generation of soil surveys for the county.

Figure 1.—Location of Delaware County in Indiana.

General Nature of the County

This section gives general information about the physical and cultural features of the county. It describes history and development; physiography; relief and drainage; water supply; climate; farming; and industries, transportation, and natural resources.

History and Development

Most of the early settlers in Delaware County came from Virginia, Pennsylvania, and Kentucky. The Delaware and Miami Indians, who were living in the area when the settlers arrived, remained until 1818. Muncie, the county seat, was named for the chief of the Delaware tribe (Huffman, 1972). The first permanent settlement in Delaware County was established in 1820. The earliest settlers located along the West Fork of the White River near the present sites of Muncie, New Burlington, and Smithfield.

The county was officially established in 1827. The discovery of natural gas in the county in 1886 led to the development of many local industries. Ball Brothers Glass Corporation, the largest of these, was responsible for the establishment of Ball State University and Ball Memorial Hospital, which continue to be two of the largest employers in the county (Huffman, 1972). Some businesses closed after the supply of natural gas was depleted, but industry in general continued to increase over the years. Today, Muncie is one of the major industrial areas in central Indiana.

Physiography

Delaware County lies within the Central Lowlands province of the United States and in the Till Plains section of the province. In Indiana, the Till Plains section is known as the Tipton Till Plain. All of Delaware County is in Major Land Resource Area 111, Indiana and Ohio Till Plain (USDA, 1981).

The till plain in Delaware County is divided into two distinct landforms, ground moraines and recessional moraines. The ground moraines have rather broad, flat surfaces with swell-and-swale topography and scattered closed depressions. The largest ground moraine in the county lies in the watershed between the West Fork of the White River and the Mississinewa River. The recessional moraines are a series of rolling, mostly convex ridges that are narrower and more sloping than the ground moraines. The rolling slopes in the southeastern part of the county are part of the Knightstown Moraine (Wayne, 1965).

The two major rivers in the county dissect the till plain. The rivers have steep escarpments along their edges. Relatively small flood plains and terraces commonly alternate on opposite sides of the rivers. Glaciation formed a number of eskers, kames, outwash plains, and glacial drainage channels within the till plain. An abrupt ridge system rising above the till plain northeast of Muncie is known as the Muncie Esker. Several kames in the county rise above the till plain like an inverted bowl. These eskers and kames are underlain by sand and gravel and are commonly mined. Outwash plains and glacial drainage channels commonly bracket the rivers and their tributaries or, in places, are associated with eskers.

Relief and Drainage

The average elevation on the till plain in Delaware County is between 900 and 1,000 feet above sea level. The general slope of the surface is from southeast to northwest. The lowest elevation in the county is 830 feet along the Mississinewa River on the northern edge of the county (fig. 2). The highest elevation in the county is 1,100 feet in the southeast corner of the county on the Knightstown Moraine. In places, relief from the flood plain to the crest of the adjacent moraine is 40 to 50 feet. Some of the eskers are 30 to 40 feet above the adjacent till plain.

The Mississinewa River, the West Fork of the White River, and their tributaries drain the county. The Mississinewa River and its chief tributaries—Easleys, Halfway, Pike, and Campbell Creeks—receive the drainage from the northern third of the county. The West Fork and its largest tributaries—Prairie, Buck, Mud, and Bell Creeks—drain the remaining two-thirds of the county.

Water Supply

The availability of ground water is generally good in Delaware County, and wells produce as much as 200 to 400 gallons per minute. For the most part, the primary aquifers are seams of sand and gravel within the glacial till and glacial outwash deposits of sand and gravel.

Delaware County does not have any rural water systems, thus wells are used in much of the rural community. The city of Muncie utilizes ground water as an auxiliary water supply. The primary supply for the city is derived from the White River, supplemented by discharge from Prairie Creek Reservoir during periods of low flow (fig. 3).

The quality of the ground water is strongly affected by the glacial deposits and the underlying bedrock

Figure 2.—Canada Geese along the Mississinewa River.

Figure 3.—Prairie Creek Reservoir.

formations. Notable constituents in the ground water are sulfates and fluorides, which occur in higher than normal concentrations. Hardness ranges from 300 to 500 parts per million. The content of iron in the ground water ranges from 0.3 to 3 parts per million (State of Indiana, 1980).

Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at the climate station at Muncie Ball State University, Indiana, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season. Thunderstorm days, relative humidity, percent sunshine, and wind information, listed below, are estimated from the first order station at Indianapolis, Indiana.

In winter, the average temperature is 27.7 degrees F and the average daily minimum temperature is 20.0 degrees. The lowest temperature on record, which occurred at Muncie on January 19, 1994, was -29 degrees. In summer, the average temperature is 72.8 degrees and the average daily maximum temperature is 83.1 degrees. The highest temperature, which occurred at Muncie on June 26, 1988, was 102 degrees.

Growing degree days are shown in Table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 37.67 inches. Of this, 20.1 inches, or about 53 percent, usually falls in May through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4.74 inches at Muncie on June 18, 1992. Thunderstorms occur on about 43 days each year, and most occur between May and August.

The average seasonal snowfall is 26.7 inches. The greatest snow depth at any one time during the period of record was 25 inches recorded on January 27, 1978. On an average, 31 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 12.5 inches recorded on December 20, 1973.

The average relative humidity in mid-afternoon is about 61 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time possible in summer and 43 percent in winter. The prevailing wind is from the southwest, except from January to March, when it is from the northwest. Average wind speed is highest, between 11 and 12 miles per hour, from January to April.

Farming

According to the Census of Agriculture, 635 farms were in Delaware County in 1997 (USDC, 1999). They incorporated 173,443 acres of land. About 5,307 acres was used for hay and pasture, and a total of 5,587 acres was forested. Cash grain is the major farming enterprise in the county. Corn and soybeans are the main grains grown as cash crops. About 61,100 and 96,500 acres, respectively, were planted in 2002 (Preston and Wilson, 2003). Small grains made up about 2,100 of the acres. In 2002, popcorn was harvested on 2,113 acres and specialized crops, such as tomatoes for processing, peppers, pumpkins, apples, turf grass, and nursery crops, were raised on small acreages.

Hogs and beef cattle are the main livestock raised in Delaware County (fig. 4). A few dairy operations are in the county, and some sheep and chickens are raised. Also, a significant number of horses and other equines are raised in the county.

Industries, Transportation, and Natural Resources

Muncie, the county seat of Delaware County, has many different industries. Some of the smaller companies produce component parts or provide services to the larger industries.

The main industries are plants that treat metal, produce alloys, and provide metal products; factories that manufacture automotive equipment and tool-and-die equipment; and firms that provide a variety of goods and services, including trucking, foods, and other retail products.

Delaware County is served by several State highways, U.S. Highway 35, and Interstate Highway 69. Muncie is located about 50 miles northeast of Indianapolis, Indiana, and is within 5 to 10 miles of Interstate 69. Delaware County is served by three railroad lines. Small airlines provide commuter service to the Muncie airport. Grain markets consist mainly of local elevators in the county and surrounding counties. From these elevators, grain is shipped by truck or railroad to larger terminals.

Figure 4.—Beef cattle in a pasture.

Delaware County has an abundant supply of natural resources, including productive soils and good sources of ground water. Glacial outwash deposits provide a good source of sand and gravel. Several commercial gravel pits are in operation. Quarries produce crushed and agricultural limestone used in concrete, farming, road construction, and building construction. Organic soils provide a source of muck and peat. The larger deposits are found in the northwest quadrant of the county. A few commercial operations mine muck and peat in the county.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist

to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey area.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Martinsville loam, 0 to 2 percent slopes, is a phase of the Martinsville series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded, is an example.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Pits, quarry, is an example.

Table 4 gives the acreage and proportionate extent

of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

BdhAH—Bellcreek silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Backswamps on flood plains

Map Unit Composition

Bellcreek and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay throughout the subsoil
- Soils that have carbonates throughout the profile
- Soils that have more than 80 percent sand and/or more than 10 percent gravel in the substratum
- Soils that have a surface layer that is more than 23 inches thick
- Soils on the upper ends of tributaries that flood less often than frequently or for very brief durations

Dissimilar soils:
- The very poorly drained Sloan soils in the slightly higher positions on flood plains
- The somewhat poorly drained Shoals soils in the slightly higher positions on flood plains
- The very poorly drained Milford soils along the higher glacial drainage channels that are not subject to flooding
- Areas of undrained soils in closed channels, mostly in woodlands

Interpretive Groups

Land capability classification: Bellcreek—3w
Farmland classification: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Bellcreek Soil

Parent material: Clayey alluvium over loamy alluvium
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: Frequent, most likely in February, March, and April
Hydric status: Hydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

BdIC2—Belmore loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash plains; glacial drainage channels on till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Belmore and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have less than 15 percent gravel in the lower part of the subsoil and in the substratum
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum
- Soils that have more than 35 percent clay in the subsoil
- Soils that have till in the lower part of the substratum

Dissimilar soils:
- The well drained Wawaka soils on moderately sloping shoulders and backslopes
- The well drained Mountpleasant soils on moderately sloping shoulders and backslopes
- The somewhat poorly drained Digby soils on nearly level footslopes

- The moderately well drained Haney soils on nearly level footslopes
- The moderately well drained Miami soils on moderately sloping shoulders and backslopes
- The moderately well drained Miamian soils on moderately sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Belmore—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded, has a surface layer of loam, and does not have a subsurface layer.

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

BdmA—Belmore silt loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains; glacial drainage channels on till plains
Position on landform: Summits

Map Unit Composition

Belmore and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 15 percent gravel in the lower part of the subsoil and in the substratum
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum
- Soils that have more than 35 percent clay in the subsoil
- Soils that have till in the lower part of the substratum
- Soils that have a mantle of loess

Dissimilar soils:
- The well drained Wawaka soils on microhighs on summits
- The somewhat poorly drained Digby soils in microlows on summits
- The moderately well drained Haney soils in microlows on summits

Interpretive Groups

Land capability classification: Belmore—2s
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low

Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

BdmB2—Belmore silt loam, 1 to 5 percent slopes, eroded

Setting

Landform: Outwash plains; glacial drainage channels on till plains
Position on landform: Shoulders

Map Unit Composition

Belmore and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 15 percent gravel in the lower part of the subsoil and in the substratum
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum
- Soils that have more than 35 percent clay in the subsoil
- Soils that have till in the lower part of the substratum

Dissimilar soils:
- The well drained Wawaka soils on gently sloping shoulders
- The somewhat poorly drained Digby soils on nearly level summits
- The moderately well drained Haney soils on nearly level summits
- The moderately well drained Miamian soils on gently sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Belmore—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded and does not have a subsurface layer.

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

BdsAN—Benadum silt loam, drained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Benadum and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have mineral layers in the underlying material
- Soils in which the organic material is less than 8 inches thick
- Soils that have more than 35 percent clay in the mineral material

Dissimilar soils:
- The poorly drained Pella soils in open depressions
- The very poorly drained Muskego soils in closed depressions
- The poorly drained Southwest soils in closed depressions and drainageways
- Areas of undrained soils in closed depressions

Interpretive Groups

Land capability classification: Benadum—3w
Farmland classification: Farmland of statewide importance

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Benadum Soil

Parent material: 16 to 36 inches of slope alluvium over herbaceous organic material and coprogenous material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Slow to moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 16.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

BdsAU—Benadum silt loam, undrained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Benadum and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have mineral layers in the underlying material
- Soils in which the organic material is less than 8 inches thick
- Soils that have more than 35 percent clay in the mineral material

Dissimilar soils:
- The very poorly drained Milford soils in open depressions
- The very poorly drained Muskego, undrained, soils in microlows of closed depressions

Interpretive Groups

Land capability classification: Benadum—5w
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Benadum Soil

Parent material: 16 to 36 inches of slope alluvium over herbaceous organic material and coprogenous material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Slow to moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 16.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, April, May, June, and December
Ponding: Frequent, most likely in January, February, March, April, May, June, July, August, October, November, and December
Flooding: None
Hydric status: Hydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

BltA—Blount silt loam, 0 to 2 percent slopes

Setting

Landform: Recessional moraines
Position on landform: Summits

Map Unit Composition

Blount and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 27 percent clay in the substratum
- Soils in which the depth to dense till is more than 48 inches
- Soils that have stratified lacustrine or outwash deposits overlying dense till

Dissimilar soils:
- The moderately well drained Rawson soils on microhighs on summits and gently sloping shoulders
- The poorly drained Pewamo soils in open depressions
- The moderately well drained, moderately eroded Glynwood soils on microhighs on summits and gently sloping shoulders

Interpretive Groups

Land capability classification: Blount—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Blount Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep or deep, 30 to 48 inches, to dense material
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest perched seasonal high water table: $^{1}/_{2}$ foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

BmIA—Blount-Del Rey silt loams, 0 to 1 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Blount and similar soils: 40 to 70 percent
Del Rey and similar soils: 15 to 40 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 48 inches; in areas of the Blount soil
- Soils that have stratified outwash deposits in the profile

Dissimilar soils:
- The poorly drained Pewamo soils in open depressions
- The very poorly drained Milford, till substratum, soils in closed depressions
- The moderately well drained, moderately eroded Glynwood soils on microhighs on summits and gently sloping shoulders

Interpretive Groups

Land capability classification: Blount—2w; Del Rey—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

These soils have the profiles described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Blount Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep or deep, 30 to 48 inches, to dense material
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: High

Depth and months of highest perched seasonal high water table: 1/2 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Del Rey Soil

Parent material: Lacustrine deposits
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 8.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest perched seasonal high water table: 1/2 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

CdgC3—Casco sandy clay loam, 6 to 15 percent slopes, severely eroded

Setting

Landform: Outwash plains and outwash terraces
Position on landform: Backslopes of outwash plains and risers of outwash terraces

Map Unit Composition

Casco and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that average less than 15 percent gravel throughout the subsoil and substratum

Dissimilar soils:
- The well drained, moderately eroded Fox soils on gently sloping knolls and treads of outwash terraces
- The very poorly drained Sloan soils on flood plains
- The very poorly drained Millgrove soils in drainageways and on footslopes
- The somewhat poorly drained Digby soils on nearly level footslopes
- The moderately well drained Haney soils on nearly level footslopes

Interpretive Groups

Land capability classification: Casco—4e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Casco Soil

Parent material: 0 to 20 inches of loamy outwash over sandy and gravelly outwash
Drainage class: Somewhat excessively drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Shallow, 10 to 20 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 4.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1/2 to 1 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

CudA—Crosby silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Map Unit Composition

Crosby and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the argillic horizon
- Soils in which the depth to dense till is more than 40 inches
- Soils that have layers of outwash or lacustrine deposits overlying the till

Dissimilar soils:
- The moderately well drained Williamstown soils on microhighs on summits
- The somewhat poorly drained Del Rey soils in microlows on summits
- The poorly drained Treaty soils in open depressions
- The moderately well drained Miamian soils on gently sloping shoulders

Interpretive Groups

Land capability classification: Crosby—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Crosby Soil

Parent material: 0 to 22 inches of loess and till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 24 to 40 inches, to dense material
Available water capacity: Moderate, about 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest perched seasonal high water table: $^1/_2$ foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

DdxA—Digby-Haney silt loams, 0 to 1 percent slopes

Setting

Landform: Outwash plains; glacial drainage channels on till plains
Position on landform: Summits

Map Unit Composition

Digby and similar soils: 40 to 65 percent
Haney and similar soils: 35 to 50 percent
Dissimilar soils: 0 to 25 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil
- Soils that average more than 87 percent sand and/or more than 40 percent gravel in the substratum
- Soils in which the depth to stratified sandy, gravelly, and loamy outwash is more than 44 inches
- Soils that have till in the lower part of the substratum
- Soils that have a mantle of loess

Dissimilar soils:
- The well drained Belmore soils on microhighs on summits and gently sloping shoulders
- The very poorly drained Millgrove soils in open depressions
- The moderately well drained Williamstown soils on microhighs on summits

Interpretive Groups

Land capability classification: Digby—2w; Haney—2s
Farmland classification: Prime farmland where drained

Profile Characteristics

These soils have the profiles described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Digby Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent

Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: 1/2 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Haney Soil

Parent material: Loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

EdxA—Eldean silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces
Position on landform: Treads

Map Unit Composition

Eldean and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay throughout the subsoil
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches

Dissimilar soils:
- The well drained Muncie soils on gently sloping shoulders
- The well drained Mountpleasant soils on microhighs on treads
- The somewhat poorly drained Digby soils in microlows on treads
- The moderately well drained Haney soils in microlows on treads

Interpretive Groups

Land capability classification: Eldean—2s
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Eldean Soil

Parent material: 0 to 18 inches of loess and loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow to very rapid
Permeability below a depth of 40 inches: Rapid or very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 5.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

EdxB2—Eldean silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash terraces
Position on landform: Shoulders of treads and risers

Map Unit Composition

Eldean and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay throughout the subsoil
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches

Dissimilar soils:
- The well drained Muncie soils on moderately sloping shoulders and backslopes
- The well drained Mountpleasant soils on gently sloping shoulders
- The somewhat poorly drained Digby soils on nearly level treads above head slopes
- The moderately well drained Haney soils on nearly level treads

Interpretive Groups

Land capability classification: Eldean—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded and does not have a subsurface layer.

Properties and Qualities of the Eldean Soil

Parent material: 0 to 18 inches of loess and loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow to very rapid
Permeability below a depth of 40 inches: Rapid or very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 5.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

EdxC2—Eldean silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash terraces and kame moraines
Position on landform: Risers on outwash terraces and shoulders and backslopes on kame moraines

Map Unit Composition

Eldean and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay throughout the subsoil
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches

Dissimilar soils:
- The well drained Muncie soils on moderately sloping shoulders and backslopes
- The well drained Mountpleasant soils on moderately sloping shoulders and backslopes
- The somewhat poorly drained Digby soils on nearly level treads above head slopes
- The moderately well drained Haney soils on nearly level treads and footslopes
- The very poorly drained Millgrove soils in open depressions
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes and on risers of outwash terraces

Interpretive Groups

Land capability classification: Eldean—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded and does not have a subsurface layer.

Properties and Qualities of the Eldean Soil

Parent material: 0 to 18 inches of loess and loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow to very rapid
Permeability below a depth of 40 inches: Rapid or very rapid

Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 5.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

EdxD2—Eldean silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Outwash terraces and kame moraines
Position on landform: Risers on outwash terraces and backslopes on kame moraines

Map Unit Composition

Eldean and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay throughout the subsoil
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches

Dissimilar soils:
- The well drained Muncie soils on strongly sloping backslopes
- The well drained Mountpleasant soils on moderately sloping shoulders and backslopes
- The somewhat poorly drained Digby soils on nearly level summits above head slopes
- The moderately well drained Haney soils on nearly level footslopes
- The very poorly drained Millgrove soils on footslopes and in open depressions
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes and on risers of outwash terraces

Interpretive Groups

Land capability classification: Eldean—4e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded and does not have a subsurface layer.

Properties and Qualities of the Eldean Soil

Parent material: 0 to 18 inches of loess and loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow to very rapid
Permeability below a depth of 40 inches: Rapid or very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 5.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

EdxE2—Eldean silt loam, 18 to 35 percent slopes, eroded

Setting

Landform: Outwash terraces and kame moraines
Position on landform: Risers on outwash terraces and backslopes on kame moraines

Map Unit Composition

Eldean and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have carbonates at a depth of less than 18 inches
- Soils that have less than 35 percent clay throughout the subsoil
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches
- Soils that have slopes of less than 18 percent

Dissimilar soils:
- The well drained Lybrand soils on strongly sloping to steep backslopes
- The well drained Belmore soils on strongly sloping to steep backslopes
- The well drained Strawn soils on strongly sloping to steep backslopes
- The very poorly drained Millgrove soils on nearly level footslopes
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Eldean—6e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil is moderately eroded.

Properties and Qualities of the Eldean Soil

Parent material: 0 to 18 inches of loess and loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow to very rapid
Permeability below a depth of 40 inches: Rapid or very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

FexB2—Fox loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash terraces
Position on landform: Shoulders of treads and risers

Map Unit Composition

Fox and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum
- Soils that have more than 35 percent clay in the subsoil
- Soils that have a mantle of loess
- Soils in which the depth to sandy and gravelly outwash is more than 40 inches

Dissimilar soils:
- The well drained Ockley soils on nearly level treads
- The somewhat poorly drained Digby soils on nearly level treads above head slopes
- The moderately well drained Haney soils on nearly level treads
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping risers

Interpretive Groups

Land capability classification: Fox—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification (fig. 5)
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

FexC2—Fox loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash terraces
Position on landform: Risers

Map Unit Composition

Fox and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum
- Soils that have more than 35 percent clay in the subsoil
- Soils that have more than 40 percent silt in the upper part of the subsoil

Dissimilar soils:
- The well drained Ockley soils on gently sloping risers
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping risers
- The very poorly drained Millgrove soils on footslopes or in glacial drainage channels
- The very poorly drained Sloan soils on flood plains (fig. 6)

Interpretive Groups

Land capability classification: Fox—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained

Figure 5.—A cut showing the profile of Fox loam, 2 to 6 percent slopes, eroded, which is moderately deep to sand and gravel. Note the irregular boundary between the subsoil and the substratum.

Figure 6.—Fox loam, 6 to 12 percent slopes, eroded, on the terrace to the left. The flooded area on the adjacent flood plain to the right is Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration.

Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

FgoB2—Fox-Muncie complex, 2 to 6 percent slopes, eroded

Setting

Landform: Kames and eskers
Position on landform: Shoulders

Map Unit Composition

Fox and similar soils: 30 to 60 percent
Muncie and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum; in areas of the Fox soil
- Soils that have less than 27 percent clay in the till; in areas of the Muncie soil

Dissimilar soils:
- The well drained Ockley soils on gently sloping shoulders

- The well drained Martinsville soils on gently sloping shoulders
- The moderately well drained Rawson soils on nearly level summits and gently sloping shoulders

Interpretive Groups

Land capability classification: Fox—2e; Muncie—2e
Farmland classification: Prime farmland

Profile Characteristics

The Fox soil in this map unit has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.” The Muncie soil has the profile described as typical for the series.

Properties and Qualities of the Fox Soil

Parent material: 0 to 18 inches of loess and loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Muncie Soil

Parent material: 0 to 18 inches of loess and till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow to very rapid
Depth to restrictive feature: Deep or very deep, 48 to 96 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

FgoC2—Fox-Muncie complex, 6 to 12 percent slopes, eroded

Setting

Landform: Kames and eskers (fig. 7)
Position on landform: Shoulders and backslopes

Map Unit Composition

Fox and similar soils: 30 to 55 percent
Muncie and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum; in areas of the Fox soil
- Soils that have less than 27 percent clay in the till; in areas of the Muncie soil

Dissimilar soils:
- The well drained Ockley soils on gently sloping shoulders
- The well drained Martinsville soils on gently sloping shoulders
- The well drained Belmore soils on moderately sloping backslopes
- The moderately well drained Rawson soils on gently sloping shoulders
- The well drained Lybrand soils on strongly sloping backslopes

Interpretive Groups

Land capability classification: Fox—3e; Muncie—3e
Farmland classification: Not prime farmland

Profile Characteristics

These soils have profiles similar to the profiles

Figure 7.—Soybeans in an area of Fox-Muncie complex, 6 to 12 percent slopes, eroded, on an esker. A till plain is in the background.

described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Fox Soil

Parent material: 0 to 18 inches of loess and loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Properties and Qualities of the Muncie Soil

Parent material: 0 to 18 inches of loess and till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow to very rapid
Depth to restrictive feature: Deep or very deep, 48 to 96 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric

Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

FgrC3—Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded

Setting

Landform: Kames and eskers
Position on landform: Shoulders and backslopes

Map Unit Composition

Fox and similar soils: 30 to 55 percent
Muncie and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum; in areas of the Fox soil
- Soils that have less than 27 percent clay in the till; in areas of the Muncie soil

Dissimilar soils:
- The well drained Martinsville soils on gently sloping shoulders
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes
- The moderately well drained Rawson soils on gently sloping shoulders
- The well drained Lybrand soils on strongly sloping backslopes
- The moderately well drained, severely eroded Morley soils on moderately sloping backslopes

Interpretive Groups

Land capability classification: Fox—4e; Muncie—4e
Farmland classification: Not prime farmland

Profile Characteristics

These soils have profiles similar to the profiles described as typical for the series in the section “Classification of the Soils,” except that these soils are severely eroded and have a surface layer of clay loam.

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 4.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 2 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

Properties and Qualities of the Muncie Soil

Parent material: Till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow or moderately slow
Permeability below a depth of 40 inches: Slow to very rapid
Depth to restrictive feature: Deep or very deep, 48 to 96 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 1 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

FgrD3—Fox-Muncie clay loams, 12 to 18 percent slopes, severely eroded

Setting

Landform: Kames and eskers
Position on landform: Backslopes

Map Unit Composition

Fox and similar soils: 30 to 55 percent
Muncie and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that average less than 15 percent gravel in the lower part of the subsoil and in the substratum; in areas of the Fox soil
- Soils that have less than 27 percent clay in the till; in areas of the Muncie soil

Dissimilar soils:
- The well drained Belmore soils on moderately sloping backslopes
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes
- The moderately well drained Rawson soils on gently sloping backslopes and footslopes
- The well drained Lybrand soils on strongly sloping to steep backslopes
- The moderately well drained, severely eroded Morley soils on strongly sloping backslopes

Interpretive Groups

Land capability classification: Fox—6e; Muncie—6e
Farmland classification: Not prime farmland

Profile Characteristics

These soils have profiles similar to the profiles described as typical for the series in the section "Classification of the Soils," except that these soils are severely eroded and have a surface layer of clay loam.

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Low, about 4.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 2 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

Properties and Qualities of the Muncie Soil

Parent material: Till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow or moderately slow
Permeability below a depth of 40 inches: Slow to very rapid
Depth to restrictive feature: Deep or very deep, 48 to 96 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 1 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

GlnAH—Gessie-Eel silt loams, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Map Unit Composition

Gessie and similar soils: 35 to 65 percent
Eel and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils in which the base of the cambic horizon is at a depth of less than 30 inches; in areas of the Gessie soil
- Soils that do not have carbonates throughout the soil; in areas of the Gessie soil
- Soils on the upper ends of tributaries that flood less often than frequently or for very brief durations

Dissimilar soils:
- The well drained Lash soils on natural levees
- The very poorly drained Sloan soils on the lower flood plains
- The somewhat poorly drained Shoals soils on the slightly lower flood plains

Interpretive Groups

Land capability classification: Gessie—2w; Eel—2w
Farmland classification: Prime farmland where protected from flooding or not frequently flooded during the growing season

Profile Characteristics

These soils have the profiles described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Gessie Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Low
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: Low for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

Properties and Qualities of the Eel Soil

Parent material: Loamy alluvium
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 11.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Low
Potential for frost action: Moderate
Depth and months of highest apparent seasonal high water table: 1$^1/_2$ foot, January, February, and March
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

GlrB2—Glynwood silt loam, 1 to 4 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and summits

Map Unit Composition

Glynwood and similar soils: 60 to 100 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that have a surface layer of silty clay loam or clay loam
- Soils in which the depth to dense till is more than 48 inches
- Soils that have less than 27 percent clay in the substratum

Dissimilar soils:
- The moderately well drained Rawson soils on gently sloping shoulders
- The moderately well drained Morley soils on moderately sloping backslopes
- The somewhat poorly drained Blount and Del Rey soils on nearly level summits
- The moderately well drained, severely eroded

Mississinewa soils on gently sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Glynwood—3e
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Glynwood Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep or deep, 25 to 48 inches, to dense material
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

GlyB3—Glynwood-Mississinewa clay loams, 2 to 6 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Glynwood and similar soils: 35 to 65 percent
Mississinewa and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have a surface layer of silt loam
- Soils in which the depth to dense till is more than 40 inches; in areas of the Glynwood soil
- Soils that have less than 27 percent clay in the substratum

Dissimilar soils:
- The moderately well drained Glynwood soils on gently sloping shoulders
- The somewhat poorly drained Blount soils on nearly level summits and footslopes
- The poorly drained Pewamo soils in open depressions
- The moderately well drained, severely eroded Morley soils on moderately sloping backslopes

Interpretive Groups

Land capability classification: Glynwood—3e; Mississinewa—3e
Farmland classification: Not prime farmland

Profile Characteristics

The Glynwood soil in this map unit has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is severely eroded, has a surface layer of clay loam, and does not have a subsurface layer. The Mississinewa soil has the profile described as typical for the series.

Properties and Qualities of the Glynwood Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to dense material
Available water capacity: Low, about 4.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^{1}/_{2}$ to 2 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

Properties and Qualities of the Mississinewa Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow, 12 to 20 inches, to dense material
Available water capacity: Low, about 3.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1/2 to 1 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

HtbAN—Houghton muck, drained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Houghton and similar soils: 60 to 100 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that have mineral layers in the substratum
- Soils in which the organic material is less than 51 inches thick
- Soils that have layers of less-decomposed organic material
- Soils that have carbonates in the profile

Dissimilar soils:
- The poorly drained Pella soils along the edges of closed depressions
- The poorly drained Pewamo soils along the edges of closed depressions
- The very poorly drained Benadum soils along the edges of closed depressions
- The very poorly drained Muskego soils along the edges of closed depressions
- The very poorly drained Houghton, undrained, soils in microlows of closed depressions
- The very poorly drained Milford soils in closed depressions

Interpretive Groups

Land capability classification: Houghton—3w
Farmland classification: Farmland of statewide importance

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Houghton Soil

Parent material: Herbaceous organic material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 23.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 70 to 99 percent
Shrink-swell potential: Not rated
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: High

HtbAU—Houghton muck, undrained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Houghton and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have mineral layers in the substratum
- Soils in which the organic material is less than 51 inches thick
- Soils that have layers of less-decomposed organic material
- Soils that have carbonates in the profile

Dissimilar soils:
- The very poorly drained Milford soils along the edges of closed depressions
- The very poorly drained Benadum, undrained, soils along the edges of closed depressions
- The very poorly drained Muskego, undrained, soils along the edges of closed depressions
- The very poorly drained Sloan soils in backswamps

Interpretive Groups

Land capability classification: Houghton—5w
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Houghton Soil

Parent material: Herbaceous organic material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 23.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 70 to 99 percent
Shrink-swell potential: Not rated
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, April, May, June, and December
Ponding: Frequent, most likely in January, February, March, April, May, June, July, August, October, November, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: High

LdfAH—Lash loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Natural levees on flood plains

Map Unit Composition

Lash and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils in which the base of the cambic horizon is at a depth of less than 40 inches
- Soils that do not have carbonates throughout
- Soils that are flooded less often than frequently or for very brief durations

Dissimilar soils:
- The well drained Ross soils in microlows on natural levees
- The well drained Gessie soils in the slightly lower positions on natural levees and flood-plain steps
- The very poorly drained Sloan soils on the lower flood plains

Interpretive Groups

Land capability classification: Lash—2w
Farmland classification: Prime farmland where protected from flooding or not frequently flooded during the growing season

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of loam.

Properties and Qualities of the Lash Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Low
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: Low for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

LneAW—Lickcreek silt loam, 0 to 3 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood-plain steps

Map Unit Composition

Lickcreek and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 85 percent sand and/or more than 60 percent gravel in the substratum
- Soils that have a surface layer that is lighter colored than the surface layer of the Lickcreek soil
- Soils that are flooded less frequently than the Lickcreek soil

Dissimilar soils:
- The well drained Fox soils on gently sloping risers on terraces
- The well drained Ross soils on the lower flood plains
- The well drained Gessie soils on the lower flood plains
- The very poorly drained Sloan soils on the lower flood plains

Interpretive Groups

Land capability classification: Lickcreek—2w
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Lickcreek Soil

Parent material: Loamy alluvium and loamy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: Occasional, most likely in January, February, March, April, May, June, and December
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

LshC3—Losantville clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

Losantville and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils that have less than 27 percent clay in the surface layer
- Soils that have less than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 20 inches
- Soils that have carbonates at the surface

Dissimilar soils:
- The moderately well drained Miamian soils on nearly level summits and gently sloping shoulders
- The somewhat poorly drained Crosby soils on nearly level summits and footslopes
- The somewhat poorly drained Shoals soils on flood plains
- The poorly drained Southwest soils in closed depressions and drainageways

Interpretive Groups

Land capability classification: Losantville—4e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil is severely eroded and has a surface layer of clay loam.

Properties and Qualities of the Losantville Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow, 12 to 20 inches, to dense material
Available water capacity: Low, about 3.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, March, April, November, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil (fig. 8).

LshD3—Losantville clay loam, 10 to 15 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

Losantville and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 27 percent clay in the surface layer
- Soils that have less than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 20 inches
- Soils that have carbonates at the surface

Dissimilar soils:
- The moderately well drained Miamian soils on moderately sloping shoulders and backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The poorly drained Southwest soils in closed depressions and drainageways (fig. 9)
- The well drained Strawn soils on strongly sloping to steep backslopes

Interpretive Groups

Land capability classification: Losantville—6e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil is severely eroded and has a surface layer of clay loam.

Properties and Qualities of the Losantville Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow, 12 to 20 inches, to dense material
Available water capacity: Low, about 3.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, March, April, November, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: High

Figure 8.—An area of Losantville clay loam, 5 to 10 percent slopes, severely eroded, showing the effects of sheet and rill erosion.

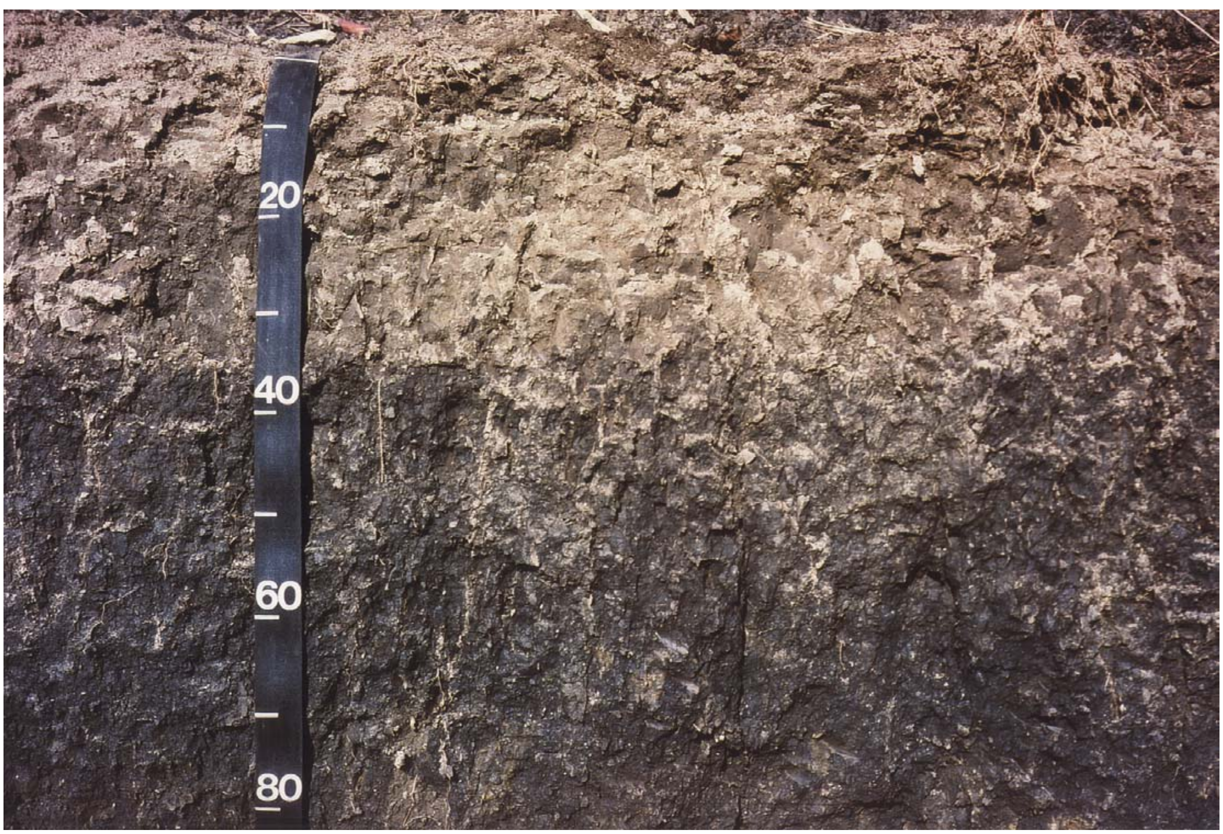


Figure 9.—The upper part of the profile in an area of Southwest silt loam, 0 to 1 percent slopes. Lighter-colored overwash overlies the buried, dark-colored soil. The overwash material was deposited from soil that eroded from the adjacent sloping soils. Measurements are in centimeters.

Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

LteE—Lybrand-Belmore loams, 15 to 30 percent slopes

Setting

Landform: Escarpments on till plains
Position on landform: Backslopes

Map Unit Composition

Lybrand and similar soils: 30 to 60 percent
Belmore and similar soils: 20 to 40 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil; in areas of the Lybrand soil
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum; in areas of the Belmore soil
- Soils that have a surface layer that is darker colored than the surface layer of the Lybrand and Belmore soils
- Soils that have a thin layer of loamy outwash material overlying the till; in areas of the Lybrand soil
- Soils that do not have a water table within a depth of 6 feet; in areas of the Lybrand soil
- Soils in which the depth to dense till is more than 60 inches; in areas of the Lybrand soil

Dissimilar soils:
- The moderately well drained Morley soils on strongly sloping backslopes
- The well drained Muncie soils on moderately sloping shoulders and backslopes
- The well drained Eldean soils on moderately steep and steep backslopes
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Lybrand—6e; Belmore—6e
Farmland classification: Not prime farmland

Profile Characteristics

These soils have profiles similar to the profiles described as typical for the series in the section "Classification of the Soils," except that these soils have a surface layer of loam.

Properties and Qualities of the Lybrand Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: Deep, 40 to 60 inches, to dense material
Available water capacity: Moderate, about 7.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 3.3 feet, February, March, and April
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

LteG—Lybrand-Belmore loams, 30 to 50 percent slopes

Setting

Landform: Escarpments on till plains
Position on landform: Backslopes

Map Unit Composition

Lybrand and similar soils: 30 to 60 percent
Belmore and similar soils: 20 to 40 percent
Dissimilar soils: 0 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil; in areas of the Lybrand soil
- Soils that do not have a water table within a depth of 6 feet; in areas of the Lybrand soil
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum; in areas of the Belmore soil
- Soils that have a surface layer that is darker than the surface layer of the Lybrand and Belmore soils
- Soils that have a thin layer of loamy outwash material overlying the till; in areas of the Lybrand soil
- Soils that have carbonates at a depth of less than 16 inches; in areas of the Lybrand soil
- Soils that have slopes of less than 30 percent or more than 50 percent

Dissimilar soils:
- The moderately well drained Morley soils on strongly sloping backslopes
- The well drained Muncie soils on strongly sloping shoulders and backslopes
- The well drained Eldean soils on moderately steep and steep backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Lybrand—7e; Belmore—7e
Farmland classification: Not prime farmland

Profile Characteristics

These soils have profiles similar to the profiles described as typical for the series in the section "Classification of the Soils," except that these soils have a surface layer of loam.

Properties and Qualities of the Lybrand Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: Deep, 40 to 60 inches, to dense material
Available water capacity: Moderate, about 7.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 3.3 feet, February, March, and April
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MecA—Martinsville loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Summits

Map Unit Composition

Martinsville and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have a mantle of loess
- Soils that have more than 10 percent gravel in the subsoil and substratum
- Soils that have till in the lower part of the substratum
- Soils that have more than 90 percent sand in the substratum and do not have strata of finer textures

Dissimilar soils:
- The well drained Wawaka soils on microhighs on summits
- The moderately well drained Williamstown soils in microlows on summits
- The somewhat poorly drained Digby and moderately well drained Haney soils in microlows on summits

Interpretive Groups

Land capability classification: Martinsville—1
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

MecB—Martinsville loam, 2 to 6 percent slopes

Setting

Landform: Outwash plains
Position on landform: Shoulders

Map Unit Composition

Martinsville and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have a mantle of loess
- Soils that average less than 18 percent clay in the subsoil
- Soils that have more than 10 percent gravel in the subsoil and substratum
- Soils in which the base of the argillic horizon is at a depth of less than 40 inches
- Soils that have till in the lower part of the substratum
- Soils that have more than 90 percent sand in the substratum and do not have strata of finer textures

Dissimilar soils:
- The well drained Wawaka soils on gently sloping shoulders
- The moderately well drained Rawson soils on nearly level summits and gently sloping shoulders
- The somewhat poorly drained Digby and moderately well drained Haney soils on nearly level summits

Interpretive Groups

Land capability classification: Martinsville—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate

Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MmcB2—Miami loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders

Map Unit Composition

Miami and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 40 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Wawaka soils on gently sloping shoulders
- The moderately well drained Williamstown soils on nearly level summits
- The somewhat poorly drained Crosby soils on nearly level summits
- The moderately well drained, severely eroded Wapahani soils on moderately sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Miami—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of loam.

Properties and Qualities of the Miami Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MmcC2—Miami loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Miami and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 40 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Wawaka soils on moderately sloping shoulders and backslopes
- The well drained Belmore soils on moderately sloping shoulders and backslopes
- The poorly drained Southwest soils in closed depressions and drainageways
- The moderately well drained, severely eroded Wapahani soils on moderately sloping and strongly sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Miami—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil has a surface layer of loam.

Properties and Qualities of the Miami Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MoeB2—Miamian loam, 1 to 5 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Summits and shoulders

Map Unit Composition

Miamian and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil
- Soils that have 12 to 36 inches of outwash overlying the till
- Soils in which the depth to dense till is more than 40 inches

Dissimilar soils:
- The well drained Belmore soils on gently sloping shoulders
- The well drained Mountpleasant soils on gently sloping shoulders
- The somewhat poorly drained Crosby soils on nearly level summits
- The moderately well drained, severely eroded Losantville soils on backslopes

Interpretive Groups

Land capability classification: Miamian—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil has a surface layer of loam.

Properties and Qualities of the Miamian Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MoeC2—Miamian loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

Miamian and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches
- Soils that have less than 35 percent clay in the subsoil
- Soils that have 12 to 36 inches of outwash overlying the till

Dissimilar soils:
- The well drained Mountpleasant soils on moderately sloping backslopes and shoulders
- The well drained Belmore soils on moderately sloping shoulders and backslopes
- The poorly drained Southwest soils in closed depressions and drainageways
- The moderately well drained, severely eroded Losantville soils on strongly sloping backslopes

Interpretive Groups

Land capability classification: Miamian—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of loam.

Properties and Qualities of the Miamian Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MorA—Milford mucky silty clay, pothole, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Milford and similar soils: 60 to 85 percent
Dissimilar soils: 15 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil
- Soils that have carbonates at a depth of less than 28 inches

Dissimilar soils:
- The poorly drained Pella soils in open depressions
- The very poorly drained Benadum soils in microlows of closed depressions
- The poorly drained Southwest soils on microhighs of closed depressions and drainageways
- The very poorly drained Muskego, undrained, soils in microlows of closed depressions
- Areas of undrained mineral soils in closed depressions

Interpretive Groups

Land capability classification: Milford—4w
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of mucky silty clay and does not have a stratified sandy substratum.

Properties and Qualities of the Milford Soil

Parent material: Lacustrine deposits
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 20 to 25 percent
Shrink-swell potential: High
Potential for frost action: High

Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, and April
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

MphA—Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes

Setting

Landform: Glacial drainage channels

Map Unit Composition

Milford and similar soils: 70 to 95 percent
Dissimilar soils: 5 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil
- Soils that have carbonates at a depth of less than 28 inches
- Soils that have more than 22 percent clay and less stratification than the Milford soil in the substratum

Dissimilar soils:
- The poorly drained Pewamo soils in open depressions
- The very poorly drained Millgrove soils on microhighs of glacial drainage channels
- The poorly drained Pella soils in open depressions
- The very poorly drained Bellcreek soils in backswamps on flood plains
- Areas of undrained soils in closed depressions

Interpretive Groups

Land capability classification: Milford—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Milford Soil

Parent material: Clayey lacustrine deposits over sandy and loamy outwash
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4 to 6 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

MprA—Milford silty clay loam, till substratum, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Milford and similar soils: 60 to 85 percent
Dissimilar soils: 15 to 40 percent

Similar soils:
- Soils that have less than 35 percent clay in the subsoil
- Soils that have carbonates at a depth of less than 28 inches
- Soils that have stratification in the substratum
- Soils that have a surface layer that is less than 10 inches thick

Dissimilar soils:
- The poorly drained Pewamo soils in open depressions
- The poorly drained Pella soils in open depressions
- The very poorly drained Muskego soils in microlows of closed depressions
- The very poorly drained Houghton, undrained, soils in microlows of closed depressions
- The very poorly drained Milford soils that have a surface layer of mucky silty clay; in microlows of closed depressions

- The very poorly drained Benadum soils in microlows of closed depressions
- Areas of undrained mineral soils in closed depressions

Interpretive Groups

Land capability classification: Milford—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil has a substratum of till.

Properties and Qualities of the Milford Soil

Parent material: Clayey lacustrine deposits over till
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4 to 6 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December (fig. 10)
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

MryA—Millgrove silty clay loam, 0 to 1 percent slopes

Setting

Landform: Open depressions on outwash terraces, open depressions on outwash plains, and glacial drainage channels

Figure 10.—Ponding in an area of Milford silty clay loam, till substratum, 0 to 1 percent slopes.

Map Unit Composition

Millgrove and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 40 percent gravel and/or more than 90 percent sand in the substratum
- Soils that have a mantle of loess
- Soils that have less than 7 percent gravel in the lower part of the subsoil
- Soils that have till in the substratum
- Soils in which the depth to stratified sandy, gravelly, and loamy outwash is more than 55 inches

Dissimilar soils:
- The somewhat poorly drained Digby and moderately well drained Haney soils on summits
- The very poorly drained Milford, stratified sandy substratum, soils in microlows of glacial drainage channels
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Millgrove—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Millgrove Soil

Parent material: Loamy outwash over stratified sandy, gravelly, and loamy outwash
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

MumC2—Morley silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Morley and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches
- Soils that have less than 27 percent clay in the substratum

Dissimilar soils:
- The moderately well drained Glynwood soils on gently sloping shoulders
- The moderately well drained Rawson soils on gently sloping shoulders
- The somewhat poorly drained Blount soils on nearly level footslopes
- The poorly drained Pewamo soils in open depressions
- The moderately well drained, severely eroded Mississinewa soils on moderately sloping and strongly sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Morley—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil has a surface layer of silt loam.

Properties and Qualities of the Morley Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MumD2—Morley silt loam, 10 to 15 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

Morley and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches
- Soils that have less than 27 percent clay in the substratum
- Soils that have 20 to 40 inches of outwash overlying the till

Dissimilar soils:
- The well drained Muncie soils on moderately sloping shoulders and backslopes
- The well drained Lybrand soils on strongly sloping to steep backslopes
- The moderately well drained, severely eroded Mississinewa soils on moderately sloping and strongly sloping shoulders and backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Morley—4e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of silt loam.

Properties and Qualities of the Morley Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MvbC3—Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Morley and similar soils: 35 to 65 percent
Mississinewa and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches; in areas of the Morley soil
- Soils that have less than 27 percent clay in the substratum
- Soils that do not have a water table within a depth of $3^{1}/_{2}$ feet during any time of the year

Dissimilar soils:
- The moderately well drained Glynwood soils on gently sloping shoulders

- The moderately well drained Rawson soils on gently sloping shoulders
- The well drained, severely eroded Muncie soils on moderately sloping shoulders and backslopes
- The somewhat poorly drained Blount soils on nearly level footslopes
- The poorly drained Pewamo soils in open depressions

Interpretive Groups

Land capability classification: Morley—4e; Mississinewa—4e
Farmland classification: Not prime farmland

Profile Characteristics

The Morley soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is severely eroded and has a surface layer of clay loam. The Mississinewa soil has a profile similar to the profile described as typical for the series.

Properties and Qualities of the Morley Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 24 to 40 inches, to dense material
Available water capacity: Low, about 4.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: $1^1/_2$ feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

Properties and Qualities of the Mississinewa Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow, 12 to 20 inches, to dense material
Available water capacity: Low, about 3.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^1/_2$ to 1 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

MvbD3—Morley-Mississinewa clay loams, 10 to 15 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

Morley and similar soils: 40 to 70 percent
Mississinewa and similar soils: 15 to 40 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches; in areas of the Morley soil
- Soils that have less than 27 percent clay in the substratum
- Soils that do not have a water table within a depth of $3^1/_2$ feet during any time of the year

Dissimilar soils:
- The well drained, severely eroded Muncie soils on strongly sloping backslopes
- The well drained Lybrand soils on strongly sloping to steep backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The very poorly drained Sloan soils on flood plains

- The poorly drained Southwest soils in closed depressions and drainageways

Interpretive Groups

Land capability classification: Morley—6e; Mississinewa—6e
Farmland classification: Not prime farmland

Profile Characteristics

The Morley soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils," except that this soil is severely eroded and has a surface layer of clay loam. The Mississinewa soil has a profile similar to the profile described as typical for the series.

Properties and Qualities of the Morley Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 24 to 40 inches, to dense material
Available water capacity: Low, about 4.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^{1}/_{2}$ to 2 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

Properties and Qualities of the Mississinewa Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow, 12 to 20 inches, to dense material
Available water capacity: Low, about 3.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: $^{1}/_{2}$ to 1 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

MvxA—Mountpleasant silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash-floored till plains; kames; and kame moraines
Position on landform: Summits

Map Unit Composition

Mountpleasant and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the upper part of the subsoil
- Soils in which the base of the argillic horizon is at a depth of less than 20 inches

Dissimilar soils:
- The well drained Belmore soils in microlows on summits
- The well drained Eldean soils in microlows on summits
- The somewhat poorly drained Crosby soils in microlows on summits
- The moderately well drained Miamian soils on gently sloping shoulders

Interpretive Groups

Land capability classification: Mountpleasant—1
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Mountpleasant Soil

Parent material: 0 to 18 inches of loess and 4 to 8 feet of till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

MvxB2—Mountpleasant silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash-floored till plains; kames; and kame moraines
Position on landform: Shoulders

Map Unit Composition

Mountpleasant and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the upper part of the subsoil
- Soils in which the base of the argillic horizon is at a depth of less than 20 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Belmore soils on nearly level summits
- The somewhat poorly drained Crosby soils on nearly level summits
- The well drained Eldean soils on moderately sloping backslopes
- The moderately well drained Miamian soils on gently sloping shoulders

Interpretive Groups

Land capability classification: Mountpleasant—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Mountpleasant Soil

Parent material: 0 to 18 inches of loess and 4 to 8 feet of till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MvxC2—Mountpleasant silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash-floored till plains; kames; and kame moraines
Position on landform: Backslopes

Map Unit Composition

Mountpleasant and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 35 percent clay in the upper part of the subsoil
- Soils in which the base of the argillic horizon is at a depth of less than 20 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Belmore soils on moderately sloping shoulders and backslopes
- The well drained Eldean soils on strongly sloping backslopes
- The moderately well drained Miamian soils on moderately sloping shoulders and backslopes
- The poorly drained Southwest soils in closed depressions and drainageways

Interpretive Groups

Land capability classification: Mountpleasant—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Mountpleasant Soil

Parent material: 0 to 18 inches of loess and 4 to 8 feet of till over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MwzAN—Muskego muck, drained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Muskego and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have mineral layers in the substratum
- Soils in which the organic material is less than 16 inches thick
- Soils that have layers of less-decomposed organic material

Dissimilar soils:
- The very poorly drained Benadum soils along the edges of closed depressions
- The very poorly drained Milford soils on microhighs of closed depressions
- The very poorly drained Houghton soils in microlows of closed depressions
- Areas of undrained soils in closed depressions

Interpretive Groups

Land capability classification: Muskego—4w
Farmland classification: Farmland of statewide importance

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Muskego Soil

Parent material: 16 to 50 inches of herbaceous organic material over coprogenous material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Slow to moderately rapid
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 17.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 60 to 90 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March

Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: High

MwzAU—Muskego muck, undrained, 0 to 1 percent slopes

Setting

Landform: Closed depressions on till plains

Map Unit Composition

Muskego and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have layers of marly material in the substratum
- Soils that have layers of less-decomposed organic material

Dissimilar soils:
- The very poorly drained Houghton, undrained, soils in microlows of closed depressions
- The very poorly drained Milford soils along the edges of closed depressions
- The very poorly drained Benadum, undrained, soils along the edges of closed depressions
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Muskego—6w
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Muskego Soil

Parent material: 16 to 50 inches of herbaceous organic material over coprogenous material
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Slow to moderately rapid
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Very high, about 17.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 60 to 90 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, April, May, June, and December
Ponding: Frequent, most likely in January, February, March, April, May, June, July, August, October, November, and December
Flooding: None
Hydric status: Hydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: High

ObxA—Ockley silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and outwash terraces
Position on landform: Summits on outwash plains and treads on outwash terraces

Map Unit Composition

Ockley and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils that have less than 15 percent gravel in the lower part of the subsoil
- Soils that have less than 80 percent sand in the substratum

Dissimilar soils:
- The well drained Wawaka soils on microhighs on summits
- The somewhat poorly drained Digby soils in microlows on summits and treads
- The moderately well drained Haney soils in microlows on summits and treads
- The well drained Fox soils on gently sloping shoulders and risers

Interpretive Groups

Land capability classification: Ockley—1
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Ockley Soil

Parent material: 0 to 20 inches of loess and loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature: Deep or very deep, 40 to 72 inches, to strongly contrasting textural stratification
Available water capacity: High, about 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

ObxB2—Ockley silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains, kames, and outwash terraces
Position on landform: Shoulders on outwash plains and kames; treads and risers on outwash terraces

Map Unit Composition

Ockley and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils that have less than 15 percent gravel in the lower part of the subsoil
- Soils that have less than 80 percent sand in the substratum

Dissimilar soils:
- The well drained Wawaka soils on gently sloping shoulders
- The somewhat poorly drained Digby soils in microlows on summits and treads
- The moderately well drained Haney soils in microlows on summits and treads
- The well drained Fox soils on moderately sloping shoulders and backslopes of risers

Interpretive Groups

Land capability classification: Ockley—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil is moderately eroded and does not have a subsurface layer.

Properties and Qualities of the Ockley Soil

Parent material: 0 to 20 inches of loess and loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature: Deep or very deep, 40 to 72 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 8.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

PgaA—Pella silty clay loam, 0 to 1 percent slopes

Setting

Landform: Closed depressions and glacial drainage channels on till plains and outwash plains

Map Unit Composition

Pella and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have carbonates at a depth of less than 16 inches
- Soils that have more than 41 percent clay in the subsoil
- Soils in which the base of the cambic horizon is at a depth of more than 50 inches

Dissimilar soils:
- The poorly drained Treaty soils in open depressions
- The very poorly drained Millgrove soils in open depressions
- The poorly drained Pewamo soils in open depressions
- The very poorly drained Milford soils in microlows along the edges of closed depressions
- The very poorly drained Benadum soils in microlows along the edges of closed depressions
- Areas of undrained soils in closed depressions

Interpretive Groups

Land capability classification: Pella—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Pella Soil

Parent material: Silty lacustrine deposits and/or loamy outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

PkkA—Pewamo silty clay loam, 0 to 1 percent slopes

Setting

Landform: Open depressions on till plains

Map Unit Composition

Pewamo and similar soils: 65 to 95 percent
Dissimilar soils: 5 to 35 percent

Similar soils:
- Soils that have a surface layer that is less than 10 inches thick
- Soils that have 8 to 15 inches of lighter colored overwash
- Soils in which the base of the argillic horizon is at a depth of more than 60 inches
- Soils that have a layer of outwash overlying the till
- Soils that have less than 27 percent clay in the substratum

Dissimilar soils:
- The somewhat poorly drained Blount and Del Rey soils on summits (fig. 11)
- The very poorly drained Millgrove soils in microlows of open depressions
- The poorly drained Pella soils in closed depressions
- The very poorly drained Milford, till substratum, soils in closed depressions
- The very poorly drained Muskego, undrained, soils in closed depressions
- Areas of undrained mineral soils in closed depressions, mostly in woodlands

Interpretive Groups

Land capability classification: Pewamo—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Pewamo Soil

Parent material: Clayey lacustrine deposits and till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: Very deep, more than 80 inches

Figure 11.—Areas of dark-colored Pewamo silty clay loam, 0 to 1 percent slopes, and light-colored Blount-Del Rey silt loams, 0 to 1 percent slopes.

Available water capacity: High, about 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Pmg—Pits, gravel

Setting

Landform: Gravel pits on kames, eskers, outwash plains, and outwash terraces

Map Unit Composition

Pits, gravel, and similar inclusions: 70 to 90 percent
Dissimilar inclusions: 10 to 30 percent

Similar inclusions:
- Stockpiles of sand, gravel, and debris

Dissimilar inclusions:
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes and on risers of outwash terraces
- The well drained Fox soils on gently sloping treads and risers of outwash terraces
- Udorthents, loamy-skeletal, around the edges of active gravel pits and in abandoned pits
- Areas of water
- Pits, quarry

Interpretive Groups

Land capability classification: None assigned
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of open excavations from which soil and the underlying material have been removed,

leaving sand and gravel exposed at or near the surface. Many of these areas are actively mined. Areas of this unit have essentially no soil and support little or no vegetation. Some areas can be made productive, but only after major reclamation efforts. Because of the extreme variability of this unit, onsite investigation is needed to determine the properties and limitations of individual areas.

Properties and Qualities of the Pits, Gravel

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: At or near the surface
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: Not rated
Flooding: Not rated
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Not rated
Susceptibility to water erosion: Not rated
Susceptibility to wind erosion: Not rated

Pml—Pits, quarry

Setting

Landform: Limestone quarries on eskers, outwash terraces, and till plains

Map Unit Composition

Pits, quarry, and similar inclusions: 70 to 90 percent
Dissimilar inclusions:10 to 30 percent

Similar inclusions:
- Stockpiles of stone, lime, sand, gravel, and debris

Dissimilar inclusions:
- The moderately well drained Wapahani and Mississinewa soils in gently sloping and moderately sloping areas of partially disturbed soils around the edges of quarries
- Udorthents, loamy, in cut-and-filled areas
- Areas of water
- Pits, gravel

Interpretive Groups

Land capability classification: None assigned
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of open excavations from which soil and the underlying material have been removed, leaving limestone bedrock exposed at or near the surface. Many of these areas are actively mined. Areas of this unit have essentially no soil and support little or no vegetation. Some areas can be made productive, but only after major reclamation efforts. Because of the extreme variability of this unit, onsite investigation is needed to determine the properties and limitations of individual areas.

Properties and Qualities of the Pits, Quarry

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: At or near the surface
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: Not rated
Flooding: Not rated
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Not rated
Susceptibility to water erosion: Not rated
Susceptibility to wind erosion: Not rated

ReyA—Rensselaer loam, 0 to 1 percent slopes

Setting

Landform: Open depressions on outwash plains and in glacial drainage channels

Map Unit Composition

Rensselaer and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have more than 10 percent gravel in the substratum
- Soils that have a mantle of loess
- Soils that have till in the substratum

Dissimilar soils:
- The poorly drained Treaty soils in open depressions
- The somewhat poorly drained Digby soils on summits and treads

- The moderately well drained Haney soils on summits and treads
- The very poorly drained Sloan soils on flood plains

Interpretive Groups

Land capability classification: Rensselaer—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Rensselaer Soil

Parent material: Loamy outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

RroAH—Ross-Lash loams, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Natural levees on flood plains

Map Unit Composition

Ross and similar soils: 35 to 65 percent
Lash and similar soils: 20 to 50 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have a surface layer that is less than 24 inches thick; in areas of the Ross soil
- Soils that have carbonates at a depth of less than 24 inches; in areas of the Ross soil
- Soils that have more than 55 percent silt in the subsoil
- Soils in which the base of the cambic horizon is at a depth of more than 60 inches
- Soils that are flooded less frequently than the Ross or Lash soils or are flooded for very brief durations

Dissimilar soils:
- The well drained Lickcreek soils on the higher, flood-plain steps
- The well drained Gessie soils on the lower natural levees and flood-plain steps
- The very poorly drained Sloan soils on the lower flood plains

Interpretive Groups

Land capability classification: Ross—2w; Lash—2w
Farmland classification: Prime farmland where protected from flooding or not frequently flooded during the growing season

Profile Characteristics

These soils have profiles similar to the profiles described as typical for the series in the section “Classification of the Soils,” except that these soils have a surface layer of loam.

Properties and Qualities of the Ross Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Low
Potential for frost action: Moderate
Depth and months of highest apparent seasonal high water table: 4 feet, February, March, and April
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: Low for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Lash Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Low
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: Low for steel and concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderate

RrwB—Rawson loam, 1 to 5 percent slopes

Setting

Landform: Till plains
Position on landform: Summits and shoulders

Map Unit Composition

Rawson and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 15 percent clay in the surface layer
- Soils in which the depth to dense till is more than 48 inches
- Soils that have less than 27 percent clay in the substratum

Dissimilar soils:
- The moderately well drained Glynwood soils on gently sloping shoulders
- The well drained Martinsville soils on gently sloping shoulders
- The moderately well drained, severely eroded Mississinewa soils on moderately sloping backslopes
- The somewhat poorly drained Blount soils on nearly level summits

Interpretive Groups

Land capability classification: Rawson—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Rawson Soil

Parent material: 20 to 40 inches of loamy outwash and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Very slow to moderately slow
Depth to restrictive feature: Moderately deep or deep, 30 to 48 inches, to dense material
Available water capacity: Moderate, about 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SgmAH—Shoals silt loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Map Unit Composition

Shoals and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 60 percent silt in the subsoil

- Soils that have a surface layer that is darker colored than the surface layer of the Shoals soil
- Soils on the upper ends of tributaries that flood less often than frequently or for very brief durations

Dissimilar soils:
- The well drained Lash soils on natural levees
- The moderately well drained Eel soils in the slightly higher positions on flood plains
- The poorly drained Southwest soils in closed depressions and drainageways
- The very poorly drained Sloan soils on the slightly lower flood plains

Interpretive Groups

Land capability classification: Shoals—2w
Farmland classification: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of silt loam.

Properties and Qualities of the Shoals Soil

Parent material: Loamy alluvium
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: $^{1}/_{2}$ foot, January, February, and March
Ponding: None
Flooding: Frequent, most likely in February, March, and April
Hydric status: Nonhydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SmsAH—Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Map Unit Composition

Sloan and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have a surface layer that is less than 10 inches thick
- Soils that average less than 18 percent clay in the subsoil
- Soils that have carbonates throughout the profile
- Soils on the upper ends of tributaries that flood less often than frequently or for very brief durations

Dissimilar soils:
- The somewhat poorly drained Shoals soils in the slightly higher positions on flood plains
- The well drained Lash soils on natural levees
- The poorly drained Southwest soils in closed depressions and drainageways
- The very poorly drained Bellcreek soils in backswamps

Interpretive Groups

Land capability classification: Sloan—3w
Farmland classification: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils,” except that this soil has a surface layer of silt loam.

Properties and Qualities of the Sloan Soil

Parent material: Loamy alluvium
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent

Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: Frequent, most likely in February, March, and April
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SnlA—Southwest silt loam, 0 to 1 percent slopes

Setting

Landform: Closed depressions and drainageways on till plains

Map Unit Composition

Southwest and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have less than 10 inches of overwash
- Soils that have more than 40 percent clay and/or more than 30 percent sand in the buried layers
- Soils that have a buried A horizon that is thinner or lighter colored than the buried A horizon in the Southwest soil

Dissimilar soils:
- The very poorly drained Benadum soils in closed depressions
- The somewhat poorly drained Shoals soils on the lower flood plains
- The very poorly drained Sloan soils on the lower flood plains

Interpretive Groups

Land capability classification: Southwest—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Southwest Soil

Parent material: Slope alluvium and glaciofluvial deposits and/or glaciolacustrine deposits
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 11.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December (fig. 12)
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SvsE2—Strawn-Belmore loams, 15 to 30 percent slopes, eroded

Setting

Landform: Escarpments on till plains
Position on landform: Backslopes

Map Unit Composition

Strawn and similar soils: 30 to 60 percent
Belmore and similar soils: 20 to 40 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum; in areas of the Belmore soil
- Soils that have a surface layer that is darker colored than the surface layer of the Strawn and Belmore soils
- Soils that have a thin layer of loamy outwash material overlying the till; in areas of the Strawn soil

Dissimilar soils:
- The well drained Wawaka soils on the upper parts of moderately sloping and strongly sloping backslopes

Figure 12.—Ponding in an area of Southwest silt loam, 0 to 1 percent slopes.

- The very poorly drained Millgrove soils on footslopes
- The very poorly drained Sloan soils on flood plains
- The well drained Eldean soils on strongly sloping to steep backslopes
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes

Interpretive Groups

Land capability classification: Strawn—6e; Belmore—6e
Farmland classification: Not prime farmland

Profile Characteristics

The Strawn soil has the profile described as typical for the series in the section "Classification of the Soils." The Belmore soil has a profile that is similar to the profile described as typical for the series, except that this soil is moderately eroded, has a surface layer of loam, and does not have a subsurface layer.

Properties and Qualities of the Strawn Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to rapid
Permeability below a depth of 40 inches: Rapid

Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

SvsG—Strawn-Belmore loams, 30 to 50 percent slopes

Setting

Landform: Escarpments on till plains
Position on landform: Backslopes

Map Unit Composition

Strawn and similar soils: 30 to 60 percent
Belmore and similar soils: 20 to 40 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils that have more than 85 percent sand and/or more than 40 percent gravel in the substratum; in areas of the Belmore soil
- Soils that have a surface layer that is darker colored than the surface layer of the Strawn and Belmore soils
- Soils that have carbonates at a depth of less than 14 inches
- Soils that have a thin layer of loamy outwash material overlying the till; in areas of the Strawn soil
- Soils that have slopes of less than 30 percent or more than 50 percent

Dissimilar soils:
- The well drained Wawaka soils on moderately sloping and strongly sloping backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The very poorly drained Millgrove soils on footslopes
- The very poorly drained Sloan soils on flood plains
- The well drained Eldean soils on strongly sloping to steep backslopes

Interpretive Groups

Land capability classification: Strawn—7e; Belmore—7e
Farmland classification: Not prime farmland

Profile Characteristics

The Strawn soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils." The Belmore soil has a profile similar to the profile described as typical for the series, except that this soil has a surface layer of loam.

Properties and Qualities of the Strawn Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 7.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Belmore Soil

Parent material: 20 to 40 inches of loamy outwash over stratified gravelly, sandy, and loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: Moderate, about 6.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate

Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

ThrA—Treaty silty clay loam, 0 to 1 percent slopes

Setting

Landform: Open depressions on till plains

Map Unit Composition

Treaty and similar soils: 70 to 100 percent
Dissimilar soils: 0 to 30 percent

Similar soils:
- Soils that have a surface layer that is less than 10 inches thick
- Soils that have a mantle of loess that is more than 40 inches thick
- Soils in which the base of the argillic horizon is at a depth of more than 65 inches
- Soils that have more than 60 percent sand and/or more than 10 percent gravel in the lower part of the profile

Dissimilar soils:
- The somewhat poorly drained Crosby soils on summits
- The poorly drained Southwest soils in closed depressions and drainageways
- The poorly drained Pella soils in closed depressions
- The poorly drained Rensselaer soils in glacial drainage channels
- Areas of undrained soils in closed depressions, mostly in woodlands

Interpretive Groups

Land capability classification: Treaty—2w
Farmland classification: Prime farmland where drained

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Treaty Soil

Parent material: 24 to 40 inches of loess and till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 10.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Uam—Udorthents, loamy

Setting

Landform: Till plains

Map Unit Composition

Udorthents, loamy, and similar inclusions: 60 to 90 percent
Dissimilar inclusions: 10 to 40 percent

Similar inclusions:
- Soils that have some diagnostic soil horizon or fragments of a diagnostic soil horizon within a depth of 40 inches

Dissimilar inclusions:
- The moderately well drained Wapahani soils on gently sloping shoulders and backslopes
- The moderately well drained Mississinewa soils on gently sloping shoulders and backslopes
- Udorthents, loamy-skeletal, along the edges of gravel pits or borrow pits
- Urban land

Interpretive Groups

Land capability classification: None assigned
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of disturbed areas that are a mixture of the surface soil, subsoil, and underlying

material of the original soil. In areas where a deep cut has been made, the material is mainly calcareous till.

Properties and Qualities of the Udorthents, Loamy

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow to moderately slow
Depth to restrictive feature: Deep, more than 60 inches
Available water capacity: Low, about 5.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0 to $^1/_2$ percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest apparent seasonal high water table: 2$^1/_2$ feet, March, April, and May
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UccA—Urban land-Crosby-Treaty complex, 0 to 2 percent slopes

Setting

Landform: Urban land and till plains

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Crosby and similar soils: 15 to 25 percent
Treaty and similar soils: 10 to 20 percent
Dissimilar soils: 0 to 30 percent

Similar inclusions:
- Udorthents, loamy, in cut-and-filled areas

Dissimilar soils:
- The moderately well drained Miami soils on gently sloping shoulders
- The poorly drained Rensselaer soils in open depressions
- The poorly drained Pella soils in closed depressions

Interpretive Groups

Land capability classification: Urban land—None assigned; Crosby—2w; Treaty—2w
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Crosby and Treaty soils. The Crosby and Treaty soils have profiles similar to the profiles described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Crosby Soil

Parent material: 0 to 22 inches of loess and till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 24 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest perched seasonal high water table: $^1/_2$ foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Treaty Soil

Parent material: 24 to 40 inches of loess and till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Ucu—Udorthents, loamy-skeletal

Setting

Landform: Kames and outwash terraces

Map Unit Composition

Udorthents, loamy-skeletal, and similar inclusions: 60 to 90 percent
Dissimilar inclusions: 10 to 40 percent

Similar inclusions:
- Soils that have some diagnostic soil horizon or fragments of a diagnostic soil horizon within a depth of 40 inches

Dissimilar inclusions:
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes
- Pits, gravel
- Urban land
- Udorthents, loamy, in cut-and-filled areas

Interpretive Groups

Land capability classification: None assigned
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of disturbed areas that are a mixture of the surface soil, subsoil, and underlying material of the original soils. In areas where a deep cut has been made, the material is mainly sand and gravel.

Properties and Qualities of the Udorthents, Loamy-Skeletal

Parent material: Gravelly outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid or very rapid
Permeability below a depth of 40 inches: Rapid or very rapid
Depth to restrictive feature: Deep, more than 60 inches
Available water capacity: Very low, about 2.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0 to 1 percent
Shrink-swell potential: Low
Potential for frost action: Low
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very high

UdmA—Urban land-Blount-Pewamo complex, 0 to 2 percent slopes

Setting

Landform: Urban land and till plains

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Blount and similar soils: 15 to 25 percent
Pewamo and similar soils: 10 to 20 percent
Dissimilar soils: 0 to 30 percent

Similar inclusions:
- Udorthents, loamy, in cut-and-filled areas

Dissimilar inclusions:
- The moderately well drained Glynwood soils on nearly level summits and gently sloping shoulders
- The somewhat poorly drained Del Rey soils on summits

- The very poorly drained Milford, till substratum, soils in closed depressions

Interpretive Groups

Land capability classification: Urban land—None assigned; Blount—2w; Pewamo—2w
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Blount and Pewamo soils. The Blount and Pewamo soils have profiles similar to the profiles described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Blount Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep or deep, 30 to 48 inches, to dense material
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest perched seasonal high water table: $^{1}/_{2}$ foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Pewamo Soil

Parent material: Clayey lacustrine deposits and till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UemB—Urban land-Fox complex, 1 to 6 percent slopes

Setting

Landform: Urban land, kames, and outwash terraces

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Fox and similar soils: 25 to 35 percent
Dissimilar inclusions: 0 to 30 percent

Similar inclusions:
- Udorthents, loamy-skeletal, in abandoned gravel pits
- Udorthents, loamy, in cut-and-filled areas

Dissimilar inclusions:
- The well drained Ross soils on flood plains
- The well drained Martinsville soils on gently sloping shoulders
- The well drained Ockley soils on nearly level treads

Interpretive Groups

Land capability classification: Urban land—None assigned; Fox—2e
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Fox soil. The Fox soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over stratified gravelly and sandy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature: Moderately deep, 20 to 40 inches, to strongly contrasting textural stratification
Available water capacity: Moderate, about 6.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UetB—Urban land-Glynwood complex, 2 to 6 percent slopes

Setting

Landform: Urban land and till plains

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Glynwood and similar soils: 20 to 40 percent
Dissimilar inclusions: 0 to 40 percent

Similar inclusions:
- Udorthents, loamy, in cut-and-filled areas

Dissimilar soils:
- The somewhat poorly drained Blount soils on nearly level summits
- The moderately well drained Morley soils on moderately sloping backslopes
- The moderately well drained Mississinewa soils on gently sloping shoulders and backslopes
- The moderately well drained Rawson soils on gently sloping shoulders

Interpretive Groups

Land capability classification: Urban land—None assigned; Glynwood—2e
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Glynwood soil. The Glynwood soil has a profile similar to the profile described as typical for the series in the section "Classification of the Soils."

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None

Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Glynwood Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep or deep, 25 to 48 inches, to dense material
Available water capacity: Low, about 5.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Potential for frost action: High
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

UfuA—Urban land-Millgrove complex, 0 to 1 percent slopes

Setting

Landform: Urban land and outwash plains

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Millgrove and similar soils: 20 to 40 percent
Dissimilar inclusions: 0 to 40 percent

Similar inclusions:
- Udorthents, loamy, in cut-and-filled areas

Dissimilar soils:
- The very poorly drained Sloan soils on flood plains
- The very poorly drained Muskego soils in closed depressions
- The very poorly drained Milford, stratified sandy substratum, soils in glacial drainage channels
- The somewhat poorly drained Digby soils on the slightly higher treads

Interpretive Groups

Land capability classification: Urban land—None assigned; Millgrove—2w
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Millgrove soil. The Millgrove soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Millgrove Soil

Parent material: Loamy outwash over stratified sandy, gravelly, and loamy outwash
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 6 percent
Shrink-swell potential: Moderate
Potential for frost action: High
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Flooding: None
Hydric status: Hydric

Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UhaB—Urban land-Wawaka-Miami complex, 1 to 6 percent slopes

Setting

Landform: Urban land; outwash-floored till plains (fig. 13)

Map Unit Composition

Urban land and similar inclusions: 35 to 60 percent
Crosby and similar soils: 15 to 25 percent
Treaty and similar soils: 10 to 20 percent
Dissimilar soils: 0 to 30 percent

Similar inclusions:
- Udorthents, loamy, in cut-and-filled areas

Dissimilar inclusions:
- The somewhat poorly drained Crosby soils on nearly level summits
- The well drained Belmore soils in microlows on summits
- The moderately well drained Williamstown soils in microlows on summits
- The moderately well drained, severely eroded Wapahani soils on moderately sloping shoulders and backslopes

Interpretive Groups

Land capability classification: Urban land—None assigned; Wawaka—2e; Miami—2e
Farmland classification: Not prime farmland

Unit Characteristics

This unit consists of land covered by streets, parking lots, buildings, and other structures and areas of the Wawaka and Miami soils. The Wawaka and Miami soils have profiles similar to the profiles described as

Figure 13.—Aerial view of Urban land along the edge of the city of Muncie.

typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Urban Land

Parent material: Unspecified
Drainage class: Not rated
Permeability to a depth of 40 inches: Unspecified
Permeability below a depth of 40 inches: Unspecified
Depth to restrictive feature: Not rated
Available water capacity: Not rated
Content of organic matter in the surface layer: Not rated
Shrink-swell potential: Not rated
Potential for frost action: Not rated
Seasonal high water table: Not rated
Ponding: None
Flooding: None
Hydric status: Unranked
Corrosivity: Not rated
Potential for surface runoff: Very high
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Wawaka Soil

Parent material: 0 to 20 inches of loess and 5 to 10 feet of till over outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Properties and Qualities of the Miami Soil

Parent material: 0 to 18 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 30 to 40 inches, to dense material
Available water capacity: Moderate, about 6.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, January, February, March, April, May, October, November, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

W—Water

This map unit consists of water bodies, such as ponds, lakes, and rivers, and includes a few areas of municipal sewage treatment plants and animal waste treatment facilities.

WbgB3—Wapahani clay loam, 1 to 5 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

Wapahani and similar soils: 75 to 90 percent
Dissimilar soils: 10 to 25 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 24 inches
- Soils that have a thin layer of loamy outwash material above the dense till

Dissimilar soils:
- The moderately well drained Miami soils on gently sloping shoulders

- The somewhat poorly drained Crosby soils on nearly level summits and footslopes

Interpretive Groups

Land capability classification: Wapahani—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Wapahani Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow to moderately deep, 12 to 24 inches, to dense material
Available water capacity: Low, about 3.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1/2 to 1 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, March, April, May, November, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

WbgC3—Wapahani clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

Wapahani and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the depth to dense till is more than 24 inches
- Soils that have a thin layer of loamy outwash material above the dense till

Dissimilar soils:
- The moderately well drained Miami soils on gently sloping shoulders
- The well drained Belmore soils on moderately sloping backslopes
- The somewhat poorly drained Shoals soils on flood plains
- The poorly drained Southwest soils in closed depressions and drainageways

Interpretive Groups

Land capability classification: Wapahani—4e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Wapahani Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderately slow
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Shallow to moderately deep, 12 to 24 inches, to dense material
Available water capacity: Low, about 3.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1/2 to 1 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, March, April, May, November, and December
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight
Other properties: Because of accelerated erosion, the surface layer consists mostly of material from the subsoil.

WdrA—Wawaka silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash-floored till plains
Position on landform: Summits

Map Unit Composition

Wawaka and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils that have a mantle of loess that is more than 20 inches thick
- Soils in which the base of the argillic horizon is at a depth of less than 30 inches

Dissimilar soils:
- The well drained Belmore soils in microlows on summits
- The moderately well drained Williamstown soils in microlows on summits
- The moderately well drained Miami soils on gently sloping shoulders
- The poorly drained Southwest soils in closed depressions
- The somewhat poorly drained Crosby soils in microlows on summits

Interpretive Groups

Land capability classification: Wawaka—1
Farmland classification: Prime farmland

Profile Characteristics

This soil has the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Wawaka Soil

Parent material: 0 to 20 inches of loess and 5 to 10 feet of till over outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Flooding: None
Ponding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

WdrB2—Wawaka silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash-floored till plains
Position on landform: Shoulders

Map Unit Composition

Wawaka and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the base of the argillic horizon is at a depth of less than 30 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Belmore soils on gently sloping shoulders
- The moderately well drained Williamstown soils on nearly level summits
- The somewhat poorly drained Crosby soils on nearly level summits
- The moderately well drained Miami soils on moderately sloping shoulders and backslopes
- The poorly drained Southwest soils in closed depressions

Interpretive Groups

Land capability classification: Wawaka—2e
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Wawaka Soil

Parent material: 0 to 20 inches of loess and 5 to 10 feet of till over outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Flooding: None
Ponding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

WdrC2—Wawaka silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash-floored till plains
Position on landform: Backslopes

Map Unit Composition

Wawaka and similar soils: 60 to 90 percent
Dissimilar soils: 10 to 40 percent

Similar soils:
- Soils that have more than 35 percent clay in the subsoil
- Soils in which the base of the argillic horizon is at a depth of less than 30 inches
- Soils that have layers of outwash overlying the till

Dissimilar soils:
- The well drained Belmore soils on moderately sloping backslopes
- The moderately well drained Miami soils on gently sloping shoulders and the upper part of backslopes
- The poorly drained Southwest soils in closed depressions
- The somewhat poorly drained Shoals soils on flood plains
- The well drained, severely eroded Casco soils on moderately sloping and strongly sloping backslopes

Interpretive Groups

Land capability classification: Wawaka—3e
Farmland classification: Not prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Wawaka Soil

Parent material: 0 to 20 inches of loess and 5 to 10 feet of till over outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature: Very deep, more than 80 inches
Available water capacity: High, about 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Seasonal high water table: At a depth of more than 6 feet all year
Flooding: None
Ponding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

WonA—Williamstown silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Map Unit Composition

Williamstown and similar soils: 70 to 90 percent
Dissimilar soils: 10 to 30 percent

Similar soils:
- Soils in which the depth to dense till is more than 40 inches
- Soils that have more than 35 percent clay in the subsoil
- Soils that have loamy, water-sorted deposits overlying the till

Dissimilar soils:
- The well drained Wawaka soils on microhighs on summits
- The moderately well drained Haney soils on microhighs on summits
- The moderately well drained Miami soils on gently sloping shoulders
- The somewhat poorly drained Crosby soils in microlows on summits

Interpretive Groups

Land capability classification: Williamstown—2s
Farmland classification: Prime farmland

Profile Characteristics

This soil has a profile similar to the profile described as typical for the series in the section “Classification of the Soils.”

Properties and Qualities of the Williamstown Soil

Parent material: 0 to 22 inches of loess and till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature: Moderately deep, 24 to 40 inches, to dense material
Available water capacity: Moderate, about 6.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Depth and months of highest perched seasonal high water table: 1 foot, January, February, and March
Ponding: None
Flooding: None
Hydric status: Nonhydric
Corrosivity: Moderate for steel and concrete
Potential for surface runoff: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

The classification of each of the soils in this survey area is shown in the table “Classification of the Soils.” The extent of each soil is shown in the table “Acreage and Proportionate Extent of the Soils.”

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited.* The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor.*

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Agronomy

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; prime farmland is described; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed

information given in the description of each soil under the headings “Classification of the Soils” and “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1997, about 159,571 acres in Delaware County, or about 63 percent of the total acreage, was used for cropland (USDC, 1999). The main crops were corn, soybeans, and winter wheat. About 5,307 acres was used for hay and pasture. A total of 5,587 acres, or about 2 percent of the total land acreage, was forested.

The potential of the soils for increased production of food crops is good. Food production can be increased by extending the latest crop production technology to all the cropland in the county. This soil survey can help to facilitate the application of such technology.

The soils and climate of the survey area are suited to the field crops that are currently grown in the county and to some that are not commonly grown. Corn, soybeans, and winter wheat are the principal cultivated crops. Other cultivated crops grown in the county are oats and rye. Alfalfa, alsike clover, redtop, red clover, fescue, and orchardgrass are commonly grown for hay and pasture (fig. 14). A few specialty crops are grown in the county, mainly popcorn, tomatoes, peppers, sweet corn, seed corn, apples, and pumpkins. The latest information about cultivated crops, hay and pasture crops, and specialty crops can be obtained from local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

The paragraphs that follow describe the main management concerns affecting the use of the soils in the county for crops and pasture. These concerns are wetness, water erosion, tilth, and fertility.

Wetness is the major management concern on about 67 percent of the cropland and pasture in the county. The poorly drained Pewamo, Rensselaer, and Treaty soils are drained in most of the areas in which they are farmed. In many areas, however, tiles need to be repaired and replaced. A few areas of the very poorly drained soils, especially Bellcreek, Benadum, Houghton, Milford, and Muskego soils, cannot be economically or adequately drained. These soils are in deep depressions where suitable outlets are commonly unavailable. Undrained areas of the somewhat poorly drained soils, such as Blount, Crosby, Del Rey, Digby, and Shoals soils, are so wet that crops are damaged in most years.

Various land use regulations of Federal, State, and local governments may impose special restrictions on the use of soils. An example is the protection of wetlands. Statements made in this section about wetness are intended to help the land user identify and reduce the effects wetness. The landowner or user has the responsibility of identifying and complying with existing laws and regulations.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface and subsurface drains is needed in most areas of the very poorly drained, poorly drained, and somewhat poorly drained soils that are intensively row cropped. The drains should be more closely spaced in slowly permeable soils than in the more permeable soils. Subsurface drainage is moderately slow in the Milford and Bellcreek soils (fig. 15).

Organic materials in some soils, such as the Houghton soil, oxidize and subside when their pore space is filled with air. Therefore, special drainage systems are needed to control the depth and period of drainage. Lowering the water table to the level required by the crops during the growing season and then raising the water table to the surface during other parts of the year can minimize the oxidation and subsidence of these soils.

Further information about the design of drainage systems for each kind of soil is in the Field Office Technical Guide, which is available at local offices of the Natural Resources Conservation Service and on the Internet.

Water erosion is the major management concern on about 13 percent of the cropland and pasture in the county. Generally, it is a hazard where slopes are more than 2 percent. It is also a hazard on some soils that have slopes of less than 2 percent, particularly if the slopes are long.

Loss of the surface layer through erosion is damaging for three reasons. First, productivity is reduced as fertilizer, pesticides, herbicides, and organic matter are removed from the surface layer. The natural level of fertility can be reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer.

Second, severe erosion on sloping soils results in deterioration of tilth in the surface layer and reduces the rate of water intake. Soils that have a surface layer of silty clay loam or clay loam tend to become cloddy if they are tilled when too wet. Seedbed preparation becomes difficult, and seed germination is hindered. Also, a surface crust tends to form after hard rains. The crusting increases the runoff rate. The natural tilth of some soils, such as Glynwood, Morley, and Muncie soils, is reduced as the more clayey subsoil is

Figure 14.—A field of red clover hay in an area of Glynwood silt loam, 1 to 4 percent slopes, eroded, and Blount silt loam, 0 to 2 percent slopes.

Figure 15.—A drainage ditch in an area of Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes.

incorporated into the surface layer (fig. 16). Loss of the surface layer is especially damaging to soils that are shallow or moderately deep to coarse textured material or dense till material. The root zone in these soils consists mainly of the part of the profile above the limiting layer. As the surface layer is lost, the thickness of the root zone and the available water capacity are reduced. Casco soils are shallow to coarse textured material, and Eldean and Fox soils are moderately deep to coarse textured material. Losantville, Mississinewa, and Wapahani soils are shallow to dense till, and Glynwood, Miami, Miamian, and Morley soils are moderately deep to dense till.

Third, erosion results in the sedimentation and pollution of streams, rivers, ponds, and road ditches. Controlling erosion minimizes sedimentation and pollution and improves water quality for fish and wildlife, for municipal use, and for recreational uses.

The impact of raindrops is the primary cause of erosion. Where the soil is not protected by a vegetative cover, rain dislodges soil particles and breaks down soil structure. As the surface becomes compacted and sealed, the rate of water infiltration is reduced and the rate of surface runoff is increased. The runoff carries soil particles away. A good vegetative cover reduces the force of the rain as it hits the ground, thus minimizing the erosion. Measures that provide a protective cover reduce the runoff rate, increase the rate of water infiltration, and help to control erosion.

Cover crops can help to control erosion on the more sloping soils. Cover crops are especially important after harvesting soybeans, corn for silage, and other crops that leave little residue. Tillage methods that leave crop residue on 50 percent or more of the surface can protect most of the sloping soils from excessive erosion during winter and early spring.

A conservation tillage system helps to hold soil losses to acceptable levels on most of the sloping soils. If row crops are grown year after year on these soils, soil losses generally are high unless a conservation tillage system is applied.

No-till and strip-plant cropping systems are effective in minimizing soil loss on the sloping soils used for corn or soybeans. These conservation tillage

Figure 16.—Conservation reserve planting in an area of Glynwood silt loam, 1 to 4 percent slopes, eroded, and Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded. The planting helps to control erosion and improves tilth.

Figure 17.—A drop box structure used to control surface water runoff and erosion.

systems can be adapted to many of the soils that are susceptible to erosion in the county. Belmore, Casco, Eldean, Fox, Glynwood, Losantville, Miami, Miamian, Mississinewa, Morley, Mountpleasant, Muncie, Ockley, Wapahani, and Wawaka soils are examples of sloping soils that are suitable for no-till and strip-till cropping systems.

Contour farming can be effective in several areas in the county. In areas where slopes are short and irregular, managing this practice is difficult and other conservation measures may be more suitable.

Riparian buffer strips help limit the sedimentation and pollution of streams.

Water- and sediment-control basins reduce the rate of runoff in drainageways. They are most effective where subsurface tile can be installed as outlets and on soils that have slopes of about 8 percent or less.

Grassed waterways are needed to protect the channels that drain a watershed. Subsurface drains are needed in areas where wetness or seepage is a problem in the waterways.

Grade-stabilization structures are needed in many areas of the county where water in one drainageway falls into a more sloping drainageway. These structures stabilize the drainageways and minimize gully erosion (fig. 17).

Erosion can be controlled to the point where it does not diminish the productive capacity of the soils. No single erosion-control measure can control erosion on all of the soils in Delaware County. A combination of suitable conservation practices can control both gully erosion and sheet and rill erosion and can keep the soils productive.

Information about the type and design of erosion-control practices for each kind of soil is available at the local office of the Natural Resources Conservation Service.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil (fig. 18). Soils that have good tilth are granular and porous.

In Delaware County, many of the soils that are used as cropland have a surface layer of silt loam that is light in color and has a low or moderately low

content of organic matter. Generally, the structure of these soils is weak, and intense rainfall can cause the formation of a crust on the surface. This crust becomes hard and nearly impervious to water when dry. It hinders seedling emergence. Leaving protective amounts of crop residue on the surface, planting cover crops, growing green manure crops, or adding animal manure can improve the content of organic matter and can prevent crusting. Working the soil as little as possible and only when moisture conditions are favorable can reduce the extent of compaction. Fall plowing is not suitable on light colored, sloping soils because of erosion and crusting.

The only soils that benefit from fall plowing in the county are the nearly level, poorly drained and very poorly drained soils that have a high content of clay and are in depressions. Tilth is a problem in areas of these soils. If the soils are tilled when too wet, the surface layer becomes very cloddy when dry and cannot be easily worked. As a result, preparing a good seedbed is very difficult. Examples of these soils are the Bellcreek, Milford, and Pewamo soils. Fall tillage generally results in better tilth in these soils in the spring because freezing and thawing tends to improve the tilth and because it allows the soils to warm up earlier in the spring.

Cropping systems that maintain a vegetative cover reduce the rate of runoff, reduce the hazard of erosion, and increase the rate of water infiltration. On livestock farms, where pasture and hay are needed, including grasses and legumes in the cropping sequence helps to control erosion in the more sloping areas, increases the supply of nitrogen, and improves tilth (fig. 19).

The pasture plants commonly grown in the county are mixtures of tall fescue, orchardgrass, brome, timothy, alfalfa, and red clover. Other pasture plants grown in the county include bluegrass, ladino clover, redtop, alsike clover, lespedeza, and sweetclover. Most of the soils in the county are well suited to grasses, such as tall fescue, timothy, and orchardgrass, and to legumes, such as red clover, ladino clover, alfalfa, and lespedeza. Legumes grow poorly in soils that are poorly drained or very poorly drained. Examples include Bellcreek, Milford, Millgrove, Pella, Pewamo, Rensselaer, and Treaty soils. These soils are better suited to water-tolerant grasses.

Figure 18.—Poor stands of corn in an area of Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded, on a backslope in a till plain in the background. In the foreground is an area of Rensselaer loam, 0 to 1 percent slopes, in a glacial drainage channel.

Figure 19.—A hay field in an area of Morley silt loam, 5 to 10 percent slopes, eroded, on a side slope and Pewamo silty clay loam, 0 to 1 percent slopes, in a drainageway below.

The latest recommendations regarding grasses and legumes for each soil type can be obtained from the local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

Soil fertility is mainly affected by reaction and by the content of plant nutrients and organic matter. On soils that have a pH of less than about 6.4, applications of ground limestone are needed to raise the pH sufficiently for the best utilization of plant nutrients by cultivated crops, such as corn and soybeans, and for hay and pasture plants, such as alfalfa and red clover. Proper pH optimizes yields. The supply of available phosphorus and potassium is generally below the level needed for good plant growth in most of the soils in which fertilizer has never been applied. On all soils, additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to be applied.

The action of chemical herbicides varies among different types of soil. The content of organic matter in the soil affects the ability of many chemicals to control weeds. Some chemicals deteriorate slowly on clayey soils, resulting in damage to subsequent crops. Many chemicals do not work properly when the pH is too low. The kinds and amounts of chemical herbicide should be adjusted to the soil type, the tillage method, and the crop rotation. Further information about the effects of chemicals on various types of soil can be obtained from the Cooperative Extension Service or the Natural Resources Conservation Service.

Limitations and Hazards on Cropland

The main management concerns affecting the use of the soils in the county for crops are shown in table 5. The main concerns in managing cropland are controlling erosion, reducing wetness and ponding, reducing surface crusting, minimizing clodding, operating equipment safely on steep slopes, and

limiting the effects of restricted permeability and low available water capacity.

Some of the limitations and hazards shown in the table cannot be easily overcome. These include flooding, limited rooting depth, restricted permeability, low available water capacity, and subsidence.

Generally, a combination of conservation practices is needed to control both *water erosion* and *wind erosion.* Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, grassed waterways, a crop rotation that includes grasses and legumes, and field windbreaks help to minimize soil loss. Soils that have deep or wide gullies are generally not suitable for use as cropland.

In some areas of cropland, *wetness* is a limitation and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed. Generally, soils that are ponded for long or very long periods during the growing season are not suitable for use as cropland.

Practices that reduce *surface crusting* and minimize *clodding* include applying a system of conservation tillage and increasing the content of organic matter by growing cover crops, applying manure, or leaving crop residue on the surface. Surface cloddiness can be minimized by avoiding tillage when the soil is too wet.

Available water capacity refers to the capacity of soils to hold water available for use by most plants. Measures that conserve moisture are needed in areas where the soils have a low or moderate available water capacity. These measures primarily involve reducing the rates of evaporation and runoff and increasing the rate of water infiltration. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture (fig. 20).

Both a *low pH* and a *high pH* inhibit the uptake of certain nutrients by the plants or accelerate the

Figure 20.—No-till soybeans in an area of Belmore silt loam, 0 to 1 percent slopes, and Belmore silt loam, 1 to 5 percent slopes, eroded.

absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific crop. The pH of the surface layer of most of the soils in the county is low, except for some soils on flood plains. For most of the soils in the county, the pH should be raised to an optimal level for the crop being grown. Soils with a high pH may require treatment to lower the pH so that certain elements are adequately available for specific crops.

An *equipment limitation* occurs in areas where slopes are 15 percent or more. In these areas, the operation of farm equipment may be restricted and hazardous. Generally, soils with an average slope of 18 percent or more are not suitable for use as cropland. Soils in which 3 percent or more of the surface is covered with stones or boulders also have an equipment limitation. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during planting operations. Soils that have a gravelly or cobbly surface layer also have an equipment limitation.

Soils with root-restricting layers within a depth of 40 inches have a *limited rooting depth*. These layers can include bedrock, a fragipan, dense till, or stratified sand and gravel. The amount of moisture available to plants is affected by the layers.

Crops can be damaged if the soil is subject to occasional or frequent *flooding* during the growing season. Small grain crops grown in the winter are especially susceptible to damage. Water-tolerant species should be grown in areas that are subject to flooding during the growing season.

Subsidence is the loss or settlement of organic soil layers through oxidation of the organic material. Saturating the organic layers by raising the water table during the noncropping season can minimize the oxidation.

The following criteria were used to determine the limitations or hazards.

Clodding.—The soil has 35 percent or more clay in the surface layer.

Crusting.—The content of organic matter in the surface layer is 2 percent or less, the percent passing the number 200 sieve is greater than 50 percent, and the clay content is 32 percent or less.

Equipment limitation.—The soil has an average slope of 15 percent or more, has 3 percent or more stones or boulders covering the surface, or has 15 percent or more rock fragments in the surface layer.

Flooding.—The soil is occasionally or frequently flooded during the growing season.

High pH.—The typical pH value is 7.4 or higher in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Low available water capacity.—By weighted average, the available water capacity is 0.05 inch or more of water per inch of soil within a depth of 60 inches but is less than 0.10 inch.

Low pH.—The typical pH value is 6.0 or lower in the surface layer.

Moderate available water capacity.—By weighted average, the available water capacity is 0.10 inch or more of water per inch of soil within a depth of 60 inches but is less than 0.15 inch.

Ponding.—The soil is occasionally or frequently ponded during the growing season (fig. 21).

Restricted permeability.—Permeability is less than 0.2 inch per hour in one or more layers within a depth of 40 inches.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is greater than 0.8, and the average slope is 3 percent or more.

Wetness.—The water table is within a depth of 1.5 feet during the growing season.

Wind erosion.—The wind erodibility group is 1 or 2 for soils on flood plains or 3 for soils in other areas.

Limitations and Hazards on Pasture

Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and climate of the area helps to maintain productive pastures.

The management concerns affecting the use of the soils in the county for pasture are shown in table 5. The main concerns affecting pasture are erosion, equipment limitations, wetness and ponding, trafficability, and low or very low available water capacity. Also, the majority of the soils that are suitable for growing legumes have a high potential for frost action. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about the legumes that can be damaged by frost heave. This hazard is not listed in table 5 because it applies to the majority of the soils.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are depth to

Figure 21.—Crop damage caused by ponding in an area of Pella silty clay loam, 0 to 1 percent slopes.

bedrock, low or very low available water capacity, subsidence, and flooding.

Both *water erosion* and *wind erosion* reduce the productivity of pastureland. Controlling erosion during seedbed preparation is a major concern. If a soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, planting field windbreaks, farming on the contour, and using a system of conservation tillage that leaves a protective cover of crop residue on the surface can help to minimize erosion. Soils that have deep or wide gullies are generally not suitable for use as pasture.

In some pastures, *wetness* is a limitation and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed (fig. 22). Generally, soils that are ponded for long or very long periods during the growing season are not suitable for use as pasture. Overgrazing or grazing when the soil is wet reduces the extent of plant cover and results in surface compaction, thus increasing susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition.

Subsidence is the loss or settlement of organic soil layers through oxidation of the organic material. Saturating the organic layers by raising the water table during the noncropping season can minimize the oxidation.

Trafficability of livestock and machinery across the soil is a limitation affecting wet soils that have a loamy, clayey, or organic surface layer. Properly locating facilities for watering, feeding, and sheltering livestock helps to minimize surface compaction and the formation of ruts and thus helps to prevent damage to the pasture crops.

An *equipment limitation* occurs in areas where slopes are 15 percent or more. In these areas, the operation of farm equipment may be restricted and hazardous. Generally, soils with an average slope of 25 percent or more are not suitable for use as pasture. Soils in which 3 percent or more of the surface is covered with stones or boulders also have an equipment limitation. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during reseeding and planting operations. Soils that have a gravelly or cobbly surface layer also have an equipment limitation.

Soils with root-restricting layers within a depth of 40 inches have a *limited rooting depth*. These layers

can include bedrock, a fragipan, dense till, or stratified sand and gravel. The amount of moisture available to plants is affected by the layers.

Available water capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of the pasture plants may be reduced for soils that have low or very low available water capacity. In such soils, the amount of moisture may be inadequate for the maintenance of a healthy community of desired pasture species and thus for the desired number of livestock. A poor quality pasture increases the hazard of erosion and the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish a cover of vegetation. Irrigation may be needed.

Both a *low pH* and a *high pH* inhibit the uptake of certain nutrients by the plants or accelerate the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

Figure 22.—Drainage tile that has partially filled with sediment and requires maintenance in an area of Pewamo silty clay loam, 0 to 1 percent slopes. Measurements are in inches.

The following criteria were used to determine the limitations or hazards.

Equipment limitation.—The soil has an average slope of 15 percent or more, has 3 percent or more stones or boulders covering the surface, or has 15 percent or more rock fragments in the surface layer.

Flooding.—The soil is occasionally or frequently flooded during the growing season.

High pH.—The typical pH value is 7.4 or higher in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Low or very low available water capacity.—By weighted average, the available water capacity is less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Low pH.—The typical pH value is 6.0 or lower in the surface layer.

Ponding.—The soil is occasionally or frequently ponded during the growing season.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Trafficability.—The soil is somewhat poorly drained, poorly drained, or very poorly drained, and the surface layer is loamy, clayey, or organic material.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is greater than 0.8, and the average slope is 3 percent or more.

Wetness.—The soil is poorly drained or very poorly drained.

Wind erosion.—The wind erodibility group is 1 or 2 for soils on flood plains or 3 for soils in other areas.

Yields per Acre

The average yields per acre that can be expected for the principal crops under a high level of management are shown in table 6. The principal crops in the county are corn, soybeans, winter wheat, grass-legume hay, and pasture. Yields for each map unit are based on a composite average of all soil components that are typically in the map unit. In any given year, yields may be higher or lower than those indicated in the table. These differences are the result of variations in rainfall and other climatic factors; varieties grown; environmental factors, such as plant diseases and insect infestations; and type of fertility program. The land capability classification of each map unit also is shown in the table.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage; erosion control; protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed and implemented. The relative productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small.

The estimated yields in the table were calculated based on a percentage relative to a specific value for corn yields. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Proper grazing under good management is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are also important management practices.

Estimated pasture yields are commonly provided in animal unit months (AUM), or the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month. The estimated yields of grass-legume hay and pasture in the table were calculated based on a percentage relative to a specific value for corn yields.

Yields for hay and pasture crops vary widely depending on the type and combination of grasses and legumes grown.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 6.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their

limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA–SCS, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Benadum silt loam, drained, 0 to 1 percent slopes; Houghton muck, drained, 0 to 1 percent slopes; and Muskego muck, drained, 0 to 1 percent slopes, are considered additional farmland of statewide importance. This farmland consists of soils that are important to the agricultural resource base in the county but that do not meet the requirements for prime farmland. These soils are more erodible, droughty, seasonally wet, or difficult to cultivate than prime farmland soils. They are also usually less productive than prime farmland soils.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens.

Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2003) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field.

These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1998).

BdhAH	Bellcreek silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration
BdsAN	Benadum silt loam, drained, 0 to 1 percent slopes
BdsAU	Benadum silt loam, undrained, 0 to 1 percent slopes
HtbAN	Houghton muck, drained, 0 to 1 percent slopes
HtbAU	Houghton muck, undrained, 0 to 1 percent slopes (fig. 23)
MorA	Milford mucky silty clay, pothole, 0 to 1 percent slopes
MphA	Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes
MprA	Milford silty clay loam, till substratum, 0 to 1 percent slopes

Figure 23.—Hydrophytic vegetation in an area of Houghton muck, undrained, 0 to 1 percent slopes.

MryA Millgrove silty clay loam, 0 to 1 percent slopes
MwzAN Muskego muck, drained, 0 to 1 percent slopes
MwzAU Muskego muck, undrained, 0 to 1 percent slopes
PgaA Pella silty clay loam, 0 to 1 percent slopes
PkkA Pewamo silty clay loam, 0 to 1 percent slopes
ReyA Rensselaer loam, 0 to 1 percent slopes
SmsAH Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration
SnlA Southwest silt loam, 0 to 1 percent slopes
ThrA Treaty silty clay loam, 0 to 1 percent slopes
UfuA Urban land-Millgrove complex, 0 to 1 percent slopes

Map units that are made up of hydric soils may have small areas, or included components, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. However, within some of these map units are areas of hydric soils. The list specifies the component with hydric characteristics and the extent of the component in the map unit. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

BltA Blount silt loam, 0 to 2 percent slopes (Pewamo and similar soils: 5 percent)
BmlA Blount-Del Rey silt loams, 0 to 1 percent slopes (Milford and similar soils: 5 percent and Pewamo and similar soils: 5 percent)
CdgC3 Casco sandy clay loam, 6 to 15 percent slopes, severely eroded (Millgrove and similar soils: 5 percent and Sloan and similar soils: 5 percent)
CudA Crosby silt loam, 0 to 2 percent slopes (Treaty and similar soils: 5 percent)
DdxA Digby-Haney silt loams, 0 to 1 percent slopes (Millgrove and similar soils: 5 percent)
EdxC2 Eldean silt loam, 6 to 12 percent slopes, eroded (Millgrove and similar soils: 5 percent)
EdxD2 Eldean silt loam, 12 to 18 percent slopes, eroded (Millgrove and similar soils: 5 percent)
EdxE2 Eldean silt loam, 18 to 35 percent slopes, eroded (Millgrove and similar soils: 5 percent and Sloan and similar soils: 5 percent)
FexC2 Fox loam, 6 to 12 percent slopes, eroded (Millgrove and similar soils: 5 percent and Sloan and similar soils: 5 percent)
GlnAH Gessie-Eel silt loams, 0 to 1 percent slopes, frequently flooded, brief duration (Sloan and similar soils: 5 percent)
GlyB3 Glynwood-Mississinewa clay loams, 2 to 6 percent slopes, severely eroded (Pewamo and similar soils: 3 percent)
LdfAH Lash loam, 0 to 1 percent slopes, frequently flooded, brief duration (Sloan and similar soils: 5 percent)
LneAW Lickcreek silt loam, 0 to 3 percent slopes, occasionally flooded, very brief duration (Sloan and similar soils: 5 percent)
LshC3 Losantville clay loam, 5 to 10 percent slopes, severely eroded (Southwest and similar soils: 3 percent)
LshD3 Losantville clay loam, 10 to 15 percent slopes, severely eroded (Southwest and similar soils: 5 percent)
LteE Lybrand-Belmore loams, 15 to 30 percent slopes (Sloan and similar soils: 5 percent)
LteG Lybrand-Belmore loams, 30 to 50 percent slopes (Sloan and similar soils: 3 percent)
MmcC2 Miami loam, 6 to 12 percent slopes, eroded (Southwest and similar soils: 5 percent)
MoeC2 Miamian loam, 5 to 10 percent slopes, eroded (Southwest and similar soils: 5 percent)
MumC2 Morley silt loam, 5 to 10 percent slopes, eroded (Pewamo and similar soils: 2 percent)
MumD2 Morley silt loam, 10 to 15 percent slopes, eroded (Sloan and similar soils: 2 percent)
MvbC3 Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded (Pewamo and similar soils: 2 percent)
MvbD3 Morley-Mississinewa clay loams, 10 to 15 percent slopes, severely eroded (Southwest and similar soils: 5 percent and Sloan and similar soils: 2 percent)
MvxC2 Mountpleasant silt loam, 6 to 12 percent slopes, eroded (Southwest and similar soils: 5 percent)
RroAH Ross-Lash loams, 0 to 1 percent slopes, frequently flooded, brief duration (Sloan and similar soils: 5 percent)
SgmAH Shoals silt loam, 0 to 1 percent slopes, frequently flooded, brief duration (Southwest and similar soils: 5 percent and Sloan and similar soils: 5 percent)

SvsE2 Strawn-Belmore loams, 15 to 30 percent slopes, eroded (Millgrove and similar soils: 5 percent and Sloan and similar soils: 5 percent)
SvsG Strawn-Belmore loams, 30 to 50 percent slopes (Millgrove and similar soils: 5 percent and Sloan and similar soils: 5 percent)
UccA Urban land-Crosby-Treaty complex, 0 to 2 percent slopes (Treaty and similar soils: 15 percent, Pella and similar soils: 5 percent, and Rensselaer and similar soils: 5 percent)
UdmA Urban land-Blount-Pewamo complex, 0 to 2 percent slopes (Pewamo and similar soils: 15 percent and Milford and similar soils: 5 percent)
WbgC3 Wapahani clay loam, 5 to 10 percent slopes, severely eroded (Southwest and similar soils: 5 percent)
WdrA Wawaka silt loam, 0 to 2 percent slopes (Southwest and similar soils: 2 percent)
WdrB2 Wawaka silt loam, 2 to 6 percent slopes, eroded (Southwest and similar soils: 2 percent)
WdrC2 Wawaka silt loam, 6 to 12 percent slopes, eroded (Southwest and similar soils: 5 percent)

Forestland

Hardwood forest once covered most of the land in Delaware County, but the trees have been removed from most of the land suitable for cultivation. In 1997, about 5,587 acres, or only 2 percent of the total land acreage in the county, remained forestland (USDC, 1999). Much of the remaining forest cover is on steep or very steep slopes in the uplands or in small tracts of level, poorly drained and very poorly drained soils (fig. 24). Under proper management, the soils in these areas produce trees of high quality.

Site characteristics that affect tree growth include aspect, or the direction the slope is facing, and position on the slope. These site characteristics

Figure 24.—Forestland in an area of Lybrand-Belmore loams, 30 to 50 percent slopes.

influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. North- and east-facing slopes and low positions on the slope are generally the best upland sites for tree growth because they are cooler and have better moisture conditions than south- and west-facing slopes.

Soil properties are fundamentally important for woodland production. Twenty-five percent or more of the mass of a tree is in the soil, which serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soil properties that affect the growth of trees include reaction, fertility, wetness, texture, structure, slope, and depth. Trees grow best on soils that do not have extreme properties and that have an effective rooting depth of more than 40 inches.

Soil wetness is the result of a high water table, flooding, or ponding. It causes seedling mortality, limits equipment use, and increases the windthrow hazard by restricting the rooting depth of some trees. Ruts form easily if wheeled skidders are used when the soils are wet. Deep ruts restrict lateral drainage, damage tree roots, and alter soil structure. Flooding is a hazard on some soils. On soils that are subject to flooding or ponding, equipment should be used only during periods when the ground is dry or frozen.

The slope can limit the use of forestry equipment. A slope of 15 percent or more limits the use of equipment in logging and yarding areas and on skid trails and unsurfaced logging roads. Erosion is a hazard in these disturbed areas. Special erosion-control measures, such as water bars or dips, are needed. Also, the design of logging roads and skid trails should minimize the steepness and length of slopes and prevent the concentration of water. Steep slopes are a safety hazard and limit the use of equipment. Equipment should be operated on the contour where possible for erosion control, but the steepness of the slope may present a safety issue. On the steeper slopes, logs should be moved uphill to skid trails and yarding areas.

Forestland productivity can be influenced by management activities, such as thinning young stands, harvesting mature trees, preventing fire, and eliminating the use of woodland for grazing. Forest fires are no longer a major problem in the county, but some of the forestland is used for grazing. Grazing destroys the leaf layer, compacts the soil, and destroys or damages seedlings. Forestland sites that are not used for grazing and that are protected from fire have the highest potential for production.

Much of the existing commercial forestland in Delaware County could be improved by thinning out mature trees and undesirable species. Protection from grazing and fire and control of disease and insects can also improve the stands. The Natural Resources Conservation Service, the State Division of Forestry, consulting foresters, and the Cooperative Extension Service can help to determine specific woodland management needs. Assistance in establishing, improving, or managing forestland is available from foresters or natural resources specialists.

Table 9 and tables 10a through 10d can help forest owners or managers plan the use of soils for wood crops. Table 9 shows the potential productivity of the soils for wood crops. Tables 10a through 10d rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 9, the *potential productivity* of *local plants* on a soil is expressed as a site index and as a volume number. The *local plants* are the species from which the site index data were collected. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 10a through 10d, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has

features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding.

The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main

concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the

surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are hawthorn, American plum, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver (fig. 25).

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, depth to fragipan, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate

Figure 25.—Geese in a ponded area of Benadum silt loam, drained, 0 to 1 percent slopes.

alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 13a and 13b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They

indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet (fig. 26). The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a fragipan, hardness of bedrock

Figure 26.—Basement footer being laid in Wawaka silt loam, 6 to 12 percent slopes, eroded, in outwash materials underlying till.

or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a fragipan, hardness of bedrock or a fragipan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding (fig. 27).

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a fragipan, hardness of bedrock or a fragipan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a fragipan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 14a and 14b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a fragipan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

The local Health Department should be contacted regarding local codes that affect site feasibility for septic tank absorption fields.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments

Figure 27.—A road showing ponding in an area of Pewamo silty clay loam, 0 to 1 percent slopes.

of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a fragipan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground

water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and fragipans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a fragipan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a fragipan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a fragipan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a fragipan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a fragipan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and waste-water is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and waste-water. Unfavorable soil properties can result in environmental damage.

The use of organic waste and waste-water as production resources results in the conservation of

energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the waste-water to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of waste-water for irrigation, and treatment of waste-water by slow rate, overland flow, and rapid infiltration processes. Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Water Management

A number of soil properties and site features affect water management. Interpretations developed for water management include pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways; terraces and diversions; irrigation; and drainage.

Specific information regarding water management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

Tables 15a and 15b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness (fig. 28).

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have

Figure 28.—A cut in a gravel pit on an esker, showing the sand and gravel underlying Fox-Muncie complex, 2 to 6 percent slopes, eroded.

been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a fragipan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables, including engineering index properties, physical and chemical properties, and pertinent soil and water features.

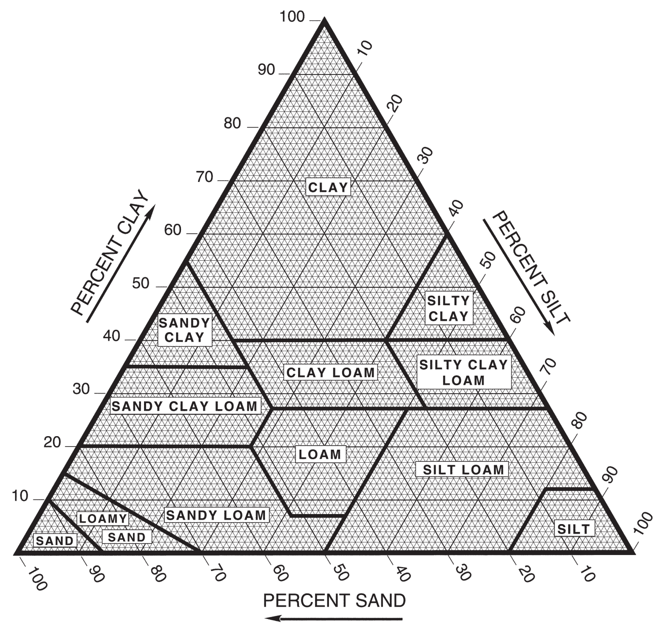


Figure 29.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 to 6 feet.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 29). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Representative values for texture are indicated with an asterisk. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000). Representative values are indicated with an asterisk.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and

plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Tables 17a and 17b show estimates of some characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 17a, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 17a, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 17a, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In table 17a, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in table 17a indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in table 17a as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Erosion factors are shown in table 17b as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Slope length (RV) is the representative value of the horizontal distance from the origin of overland flow to the point where either the slope gradient decreases enough that deposition begins or runoff becomes concentrated in a defined channel (USDA–ARS, 1996).

Slope gradient (RV) is the representative value of the difference in elevation between two points and is expressed as a percentage of the distance between those points. For example, a difference in elevation of 1 meter over a horizontal distance of 100 meters is a slope of 1 percent.

Chemical Properties

Table 18 shows estimates of cation-exchange capacity, effective cation-exchange capacity, soil reaction, calcium carbonate equivalent, and organic matter.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms (fig. 30).

Figure 30.—An area of dark-colored Pella silty clay loam, 0 to 1 percent slopes, in the background. In the foreground, light-colored Fox and Muncie soils in an area of Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. The flooding frequency expressed in the naming of map units is based on the following definitions, which are based on yearly occurrence. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year). The definitions based on yearly occurrence were also used to determine the most frequently flooded months described in the section “Detailed Soil Map Units.”

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

The entries indicating frequency of flooding on a monthly basis in table 19 use stream gauge data for those areas where the data are available and are

extrapolated for those areas where the data are not available.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Soil slippage potential is the susceptibility of a soil mass to movement downslope when loaded, excavated, or wet. Soil slippage is caused by several natural factors, and the potential is greatly increased by human activity. Type of bedrock and depth to bedrock, slope gradient, landform position, clay mineralogy, and the shrink-swell potential are the most important natural factors. Shallow soils that formed in shale, have clay mineralogy, have a high shrink-swell potential, are on steep slopes, and are on footslopes or backslopes are the most susceptible to soil slippage.

Soils that have a medium or high slippage potential are even more susceptible to slippage where certain types of human activity take place. Factors that increase potential for soil slippage include making cuts in hillsides during construction of roadbeds and houses; concentrating water by changing surface water runoff patterns; allowing water to concentrate from leaking water and sewer lines; increasing weight on slopes by building structures or placing fill for building sites; changing the course of streams, increasing stream flow, or removing rock from the stream bed, causing the base of slopes to be undercut; and removing vegetation.

Soil slippage causes damage to roads and structures and can endanger human life. Areas that have slipped are susceptible to additional slippage and are generally too unstable for most construction uses.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquoll (*Aqu,* meaning water, plus *oll,* from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Endoaquolls (*Endo,* meaning within, plus *aquoll,* the suborder of the Mollisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Endoaquolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Endoaquolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002) and the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 2003). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Bellcreek Series

Taxonomic class: Fine, smectitic, mesic Fluvaquentic Endoaquolls

Typical Profile

Bellcreek silty clay loam, on a nearly level slope, in a cultivated field; 1,200 feet west and 100 feet north of the southeast corner of sec. 10, T. 19 N., R. 9 E.; Delaware County, Indiana; USGS Sulphur Springs, Indiana, topographic quadrangle; lat. 40 degrees 6 minutes 23 seconds north and long. 85 degrees 29 minutes 5 seconds west, NAD 27; 629,147 easting and 4,440,671 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; very dark grayish brown (2.5Y 3/2) silty clay loam, grayish brown (2.5Y 5/2) dry; weak medium subangular blocky structure parting to weak fine and medium granular; firm; common very fine and fine roots; few very fine interstitial and tubular pores; 1 percent gravel; slightly alkaline; abrupt smooth boundary.

Bg1—10 to 17 inches; olive gray (5Y 4/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine and very fine roots; common very fine interstitial and tubular pores; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds and in root channels; common fine prominent yellowish brown (10YR 5/4) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; few fine irregular black (10YR 2/1) iron and manganese oxide concretions in the matrix; 1 percent gravel; slightly alkaline; clear smooth boundary.

Bg2—17 to 28 inches; dark gray (5Y 4/1) silty clay; moderate coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; common very fine roots; common very fine interstitial and tubular pores; common very dark gray (5Y 3/1) krotovinas in vertical streaks about 2 inches wide and 2 feet apart; common medium prominent yellowish brown (10YR 5/4) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; few fine irregular black (10YR 2/1) iron and manganese oxide concretions in the matrix; 1 percent gravel; slightly alkaline; clear wavy boundary.

Bg3—28 to 48 inches; gray (N 5/0) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; common very fine interstitial and tubular pores; common very dark gray (5Y 3/1) krotovinas in vertical streaks about 2 inches wide and 2 feet apart; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; common fine irregular black (10YR 2/1) iron and manganese oxide concretions in the matrix; 1 percent gravel; slightly alkaline; clear wavy boundary.

Bg4—48 to 64 inches; grayish brown (2.5Y 5/2) silty clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; few very fine roots; common very fine and fine interstitial and tubular pores; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; common fine irregular black (10YR 2/1) iron and manganese oxide concretions in the matrix; 1 percent gravel; slightly alkaline; clear wavy boundary.

Cg—64 to 80 inches; gray (5Y 5/1) stratified sandy loam (60 percent) and loam (40 percent); massive; friable; common fine prominent light olive brown (2.5Y 5/4) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; 7 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 23 inches
Depth to the base of the cambic horizon: 40 to more than 80 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—2, 2.5, or 3
Chroma—1 or 2
Texture—silty clay loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, clay loam, silty clay, or clay
Content of rock fragments—0 to 5 percent

Cg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 or 2
Texture—stratified silty clay loam, clay loam, sandy clay loam, loam, fine sandy loam, sandy loam, or loamy sand
Content of rock fragments—0 to 10 percent

Belmore Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Profile

Belmore silt loam, on a nearly level slope, in a cultivated field; 2,550 feet south and 1,650 feet east of the northwest corner of sec. 19, T. 19 N., R. 9 E.; Delaware County, Indiana; USGS Middletown, Indiana, topographic quadrangle; lat. 40 degrees 5 minutes 4 seconds north and long. 85 degrees 33 minutes 5 seconds west, NAD 27; 623,505 easting and 4,438,141 northing, UTM zone 16, NAD 83 (fig. 31).

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to moderate fine granular; friable; many fine and very fine roots; common fine interstitial and tubular pores; neutral; abrupt smooth boundary.

BA—9 to 14 inches; brown (10YR 5/3) silt loam; weak fine and medium subangular blocky structure; friable; common fine and very fine roots; common fine interstitial and tubular pores; common distinct brown (10YR 4/3) organic coatings on faces of peds; neutral; clear smooth boundary.

Bt1—14 to 21 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common fine and very fine roots; common fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; few distinct brown (10YR 4/3) organic coatings in root channels and pores; 3 percent gravel; neutral; clear wavy boundary.

Bt2—21 to 29 inches; brown (7.5YR 4/4) gravelly clay loam; strong medium subangular blocky structure; firm; few very fine roots; few fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are throughout the horizon; 25 percent gravel; slightly acid; gradual wavy boundary.

Bt3—29 to 35 inches; brown (7.5YR 4/4) gravelly sandy clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; few fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; common fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are throughout the horizon; 25 percent gravel; slightly acid; clear wavy boundary.

BCt—35 to 41 inches; dark brown (7.5YR 3/4) gravelly sandy clay loam; weak coarse subangular blocky structure; friable; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; 30 percent gravel; neutral; clear wavy boundary.

C—41 to 80 inches; brown (10YR 4/3) gravelly sandy loam; massive; very friable; 30 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: Commonly 30 to 55 inches but ranges from 22 to 55 inches
Depth to carbonates: Commonly 40 to 55 inches but ranges from 30 to 55 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent fine and medium gravel

Bt horizon, upper part:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—clay loam, sandy clay loam, loam, or sandy loam
Content of rock fragments—2 to 14 percent fine and medium gravel

Bt horizon, lower part:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 or 4
Texture—gravelly analogs of clay loam, sandy clay loam, loam, or sandy loam
Content of rock fragments—15 to 34 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—gravelly or very gravelly analogs of sandy loam, loam, or loamy sand in thick strata and fine sandy loam, silt loam, sandy clay loam, clay loam, loamy fine sand, or fine sand in thin strata
Content of rock fragments—15 to 40 percent

Benadum Series

Taxonomic class: Fine-silty, mixed, active, nonacid, mesic Thapto-Histic Fluvaquents

Typical Profile

Benadum silt loam, on a nearly level slope, in a cultivated field; 750 feet east and 150 feet north of the

southwest corner of sec. 12, T. 21 N., R. 9 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 16 minutes 38 seconds north and long. 85 degrees 27 minutes 33 seconds west, NAD 27; 630,996 easting and 4,459,671 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to weak fine granular; friable; many very fine and fine roots; few very fine tubular pores; few fine prominent strong brown (7.5YR 4/6) masses that have accumulated iron and are in the matrix; 1 percent gravel; neutral; abrupt smooth boundary.

Bg—10 to 21 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine and fine roots; few very fine tubular pores; common fine distinct light olive brown (2.5Y 5/4) masses that have accumulated iron and are in the matrix; 1 percent gravel; neutral; clear smooth boundary.

Oa—21 to 44 inches; black (2.5Y 2.5/1) (broken face and rubbed) muck (sapric material); about 5 percent fiber, less than 1 percent rubbed; massive; firm; few very fine roots; neutral; clear smooth boundary.

Cg—44 to 80 inches; dark grayish brown (2.5Y 4/2) coprogenous material; massive; friable; neutral.

Range in Characteristics

Thickness of the mineral material: 16 to 36 inches
Depth to coprogenous material: 36 to 60 inches

Ap or A horizon:
Hue—10YR or 2.5Y
Value—2 to 4
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 or 2
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent

Oa horizon:
Hue—7.5YR to 2.5Y or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—muck (sapric material)

Cg horizon:
Hue—10YR to 5Y
Value—3 or 4
Chroma—2
Texture—coprogenous material

Blount Series

Taxonomic class: Fine, illitic, mesic Aeric Epiaqualfs

Typical Profile

Blount silt loam, on a northwest-facing, concave slope of 1 percent, in a cultivated field; 130 feet west and 1,880 feet south of the northeast corner of sec. 3, T. 6 S., R. 1 E.; Mercer County, Ohio; USGS Erastus, Ohio, topographic quadrangle; lat. 40 degrees 33 minutes 35 seconds north and long. 84 degrees 46 minutes 45 seconds west, NAD 27; 688,022 easting and 4,492,260 northing, UTM zone 16, NAD 83 (fig. 32).

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; common roots; 3 percent gravel; slightly acid; abrupt smooth boundary.

Btg—7 to 12 inches; grayish brown (10YR 5/2) silty clay; moderate medium subangular blocky structure; firm; common roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many distinct yellowish brown (10YR 5/4) masses that have accumulated iron, have clear boundaries, and are in the matrix; common distinct light gray (10YR 7/1) clay depletions on vertical faces of peds; 3 percent gravel; strongly acid; clear wavy boundary.

Bt—12 to 23 inches; dark yellowish brown (10YR 4/4) clay; weak fine and medium prismatic structure parting to moderate medium subangular blocky; firm; few roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses that have accumulated iron, have diffuse boundaries, and are in the matrix; many medium distinct dark grayish brown (10YR 4/2) and common distinct gray (10YR 5/1) iron depletions that have clear boundaries and are in the matrix; 4 percent gravel; slightly acid; clear wavy boundary.

BCg—23 to 30 inches; grayish brown (10YR 5/2) silty clay loam; weak medium subangular blocky structure; firm; few faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct light gray (10YR 7/2) calcium carbonate coatings on vertical faces of peds; many medium distinct dark yellowish brown (10YR 4/4) and common prominent yellowish brown (10YR 5/6)

masses that have accumulated iron, have clear boundaries, and are in the matrix; 8 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

CBd—30 to 42 inches; brown (10YR 4/3) clay loam; weak medium platy structure; very firm; common distinct white (10YR 8/1) calcium carbonate coatings on faces of plates; common faint grayish brown (10YR 5/2) iron depletions that have diffuse boundaries and are in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

Cd1—42 to 54 inches; brown (10YR 5/3) clay loam; massive but with widely spaced vertical fractures; very firm; common distinct light gray (10YR 7/1) calcium carbonate coatings on faces of fractures; few distinct yellowish brown (10YR 5/6) masses that have accumulated iron and have clear boundaries; few distinct dark gray (10YR 4/1) iron depletions that have diffuse boundaries and are in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

Cd2—54 to 80 inches; brown (10YR 4/3) clay loam; massive; very firm; few prominent strong brown (7.5YR 5/6) masses that have accumulated iron and have clear boundaries; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: Commonly 24 to 36 inches but ranges from 20 to 45 inches
Depth to the base of soil development: Commonly 30 to 42 inches but ranges from 22 to 48 inches
Depth to carbonates: Commonly 24 to 32 inches but ranges from 19 to 40 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—0 to 5 percent

E horizon, where present:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—0 to 5 percent

BE or EB horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 5 percent

Bt and Btg horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay, clay, silty clay loam, or clay loam
Content of rock fragments—2 to 10 percent

BCt, BCtg, BCg, or BC horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—clay loam, silty clay, or silty clay loam
Content of rock fragments—2 to 10 percent

Cd and CBd horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—clay loam or silty clay loam
Content of rock fragments—2 to 10 percent

Casco Series

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Inceptic Hapludalfs
Taxadjunct feature: The Casco soils in Delaware County average more than 35 percent clay in the upper part of the particle-size control section. They classify as clayey over sandy or sandy-skeletal, mixed, superactive, mesic Inceptic Hapludalfs. This difference, however, does not alter the usefulness or behavior of the soils.

Typical Profile

Casco sandy clay loam, on a slope of 7 percent, in a cultivated field; 1,150 feet south and 2,150 feet west of northeast corner of sec. 16, T. 19 N., R. 9 E.; Delaware County, Indiana; USGS Middletown, Indiana, topographic quadrangle; lat. 40 degrees 6 minutes 10 seconds north and long. 85 degrees 30 minutes 28 seconds west, NAD 27; 627,189 easting and 4,440,237 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; brown (7.5YR 4/4) sandy clay loam, dark yellowish brown (10YR 4/4) dry; moderate medium angular blocky structure parting to weak medium granular; firm; few fine roots; 9 percent gravel; slightly alkaline; abrupt smooth boundary.

Bt1—8 to 12 inches; brown (7.5YR 5/4) sandy clay

loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct dark brown (7.5YR 3/2) organic coatings on faces of peds; 10 percent gravel; neutral; clear wavy boundary.

Bt2—12 to 16 inches; brown (7.5YR 4/4) gravelly sandy clay; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark brown (7.5YR 3/4) clay films on faces of peds; common distinct dark brown (7.5YR 3/2) organic coatings on faces of peds and on gravel near the lower boundary; 24 percent gravel; neutral; clear wavy boundary.

2C—16 to 60 inches; yellowish brown (10YR 5/4) very gravelly coarse sand; single grain; loose; about 55 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 10 to 20 inches

Depth to carbonates: 10 to 20 inches

Ap horizon:

Hue—7.5YR or 10YR
Value—4
Chroma—2 to 4
Texture—sandy clay loam or gravelly sandy clay loam
Content of rock fragments—0 to 34 percent gravel

Bt horizon:

Hue—5YR to 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy clay, sandy clay loam, loam, clay loam, or the gravelly analogs of these textures
Content of rock fragments—0 to 34 percent gravel and 0 to 2 percent cobbles

2C horizon:

Hue—7.5YR or 10YR
Value—4 to 7
Chroma—3 or 4
Texture—sand, coarse sand, or the gravelly to extremely gravelly analogs of these textures
Content of rock fragments—0 to 60 percent gravel and 0 to 5 percent cobbles

Crosby Series

Taxonomic class: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Profile

Crosby silt loam, on a slope of 1 percent, in a cultivated field; 1,000 feet north and 330 feet west of the southeast corner of sec. 27, T. 18 N., R. 9 E.; Henry County, Indiana; USGS New Castle West, Indiana, topographic quadrangle; lat. 39 degrees 58 minutes 41.7 seconds north and long. 85 degrees 28 minutes 56.4 seconds west, NAD 27; 629,593 easting and 4,426,452 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate medium granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

BE—8 to 11 inches; grayish brown (10YR 5/2) silt loam; moderate thin platy structure; friable; common fine roots; few fine distinct yellowish brown (10YR 5/4) masses that have accumulated iron and are in the matrix; moderately acid; clear wavy boundary.

Bt1—11 to 14 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; strongly acid; clear smooth boundary.

2Bt2—14 to 22 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; 2 percent gravel; strongly acid; clear smooth boundary.

2Bt3—22 to 28 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; many medium distinct yellowish brown (10YR 5/6) and prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; 3 percent gravel; neutral; clear smooth boundary.

2BCt—28 to 36 inches; brown (10YR 5/3) loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; common fine distinct yellowish brown

(10YR 5/6) and few fine faint yellowish brown (10YR 5/4) masses that have accumulated iron and are in the matrix; 7 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; common fine distinct yellowish brown (10YR 5/6) and few fine faint yellowish brown (10YR 5/4) masses that have accumulated iron and are in the matrix; 7 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 0 to 22 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 5 percent

BE or E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2
Texture—silt loam
Content of rock fragments—0 to 5 percent

Bt, Btg, 2Bt, or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam in the upper part and clay loam, clay, or silty clay in the lower part
Content of rock fragments—0 to 10 percent

BCt, CB, 2BCt, or 2CB horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, clay loam, or fine sandy loam
Content of rock fragments—1 to 13 percent

2Cd horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—1 to 13 percent

Del Rey Series

Taxonomic class: Fine, illitic, mesic Aeric Epiaqualfs

Typical Profile

Del Rey silt loam, on a slope of less than 1 percent, in a cultivated field; 440 feet east and 1,560 feet north of the southwest corner of sec. 3, T. 27 N., R. 12 E.; Wells County, Indiana; USGS Uniondale, Indiana, topographic quadrangle; lat. 40 degrees 49 minutes 8.5 seconds north and long. 85 degrees 9 minutes 53.3 seconds west, NAD 27; 654,770 easting and 4,520,294 northing, UTM zone 16, NAD 83.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine and very fine roots; neutral; abrupt smooth boundary.

Bt1—9 to 13 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to moderate fine angular blocky; firm; common fine and very fine roots; many distinct brown (10YR 4/3) and dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

Bt2—13 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common fine and very fine roots; many distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

Bt3—20 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

BCt—29 to 37 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to weak coarse angular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films concentrated in vertical channels; few distinct white (10YR 8/1)

carbonates coatings on faces of peds; many fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; about 1 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

C1—37 to 49 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium platy structure; firm; few very fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay accumulations concentrated in vertical channels; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; about 2 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

C2—49 to 60 inches; yellowish brown (10YR 5/4) stratified silty clay loam and silt loam; weak thick platy structure; very firm; few very fine roots; few distinct white (10YR 8/1) carbonate coatings on faces of plates and in vertical channels; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common fine distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; about 2 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 24 to 48 inches
Depth to carbonates: 20 to 48 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—1 to 3 (Where the value is 3, the chroma is 6 or more when the soils are dry.)
Texture—silt loam

E or BE horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bt or Btg horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay or silty clay loam

BCt, BCtg, BC, or BCg horizon, where present:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 2 percent

C or Cg horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silt loam or silty clay loam; thin strata of silty clay, clay loam, sandy loam, or sand in some pedons
Content of rock fragments—0 to 2 percent

Digby Series

Taxonomic class: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Profile

Digby silt loam, 0 to 1 percent slopes, in a cultivated field; 1,350 feet west and 220 feet south of the northeast corner of sec. 8, T. 21 N., R. 10 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 17 minutes 29 seconds north and long. 85 degrees 24 minutes 39 seconds west, NAD 27; 635,077 easting and 4,461,317 northing, UTM zone 16, NAD 83.

Ap—0 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate medium granular; friable; few fine roots; few fine and very fine tubular pores; 1 percent gravel; neutral; abrupt smooth boundary.

Bt1—12 to 20 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine subangular blocky structure; firm; few fine roots; few fine and very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine distinct dark gray (10YR 4/1) iron depletions throughout; 2 percent gravel; slightly acid; clear wavy boundary.

Bt2—20 to 31 inches; dark yellowish brown (10YR 4/4) gravelly sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; few very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine irregular black (10YR 2/1) masses that have accumulated iron and manganese oxide and are throughout the horizon; many medium distinct dark grayish brown (10YR 4/2) iron depletions throughout; 17 percent gravel; neutral; gradual wavy boundary.

BCtg—31 to 41 inches; dark grayish brown (10YR 4/2) gravelly sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few very fine tubular pores; few distinct dark grayish brown (10YR 4/2) clay films on faces of

peds; many medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron and are in the matrix; common fine faint gray (10YR 5/1) iron depletions throughout; 20 percent gravel; slightly effervescent; slightly alkaline; gradual wavy boundary.

Cg1—41 to 50 inches; grayish brown (10YR 5/2) gravelly sandy loam; massive; very friable; few fine roots; common fine distinct light olive brown (2.5Y 5/4) masses that have accumulated iron and have diffuse boundaries; 30 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

Cg2—50 to 80 inches; dark gray (10YR 4/1) very gravelly sandy loam; massive; very friable; few fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron and have diffuse boundaries; 40 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: Commonly 30 to 44 inches but ranges from 24 to 44 inches
Depth to carbonates: 30 to 48 inches
Thickness of the loamy outwash: 20 to 40 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 5 (6 or more dry)
Chroma—1 to 3
Texture—loam or silt loam
Content of rock fragments—0 to 14 percent fine and medium gravel

E or BE horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 or 3
Texture—loam, silt loam, sandy loam, or fine sandy loam
Content of rock fragments—2 to 14 percent fine and medium gravel

Bt or Btg horizon, upper part:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—clay loam, sandy clay loam, or loam
Content of rock fragments—2 to 14 percent fine and medium gravel

Bt or Btg horizon, lower part, and BCt or BCtg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—gravelly analogs of clay loam, sandy clay loam, or loam; thin strata of fine sandy loam or sandy clay
Content of rock fragments—15 to 34 percent fine and medium gravel

Cg or C horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 to 4
Texture—gravelly or very gravelly analogs of sandy loam, coarse sandy loam, loamy sand, or sand; thin layers of loam and silt loam
Content of rock fragments—15 to 40 percent fine and medium gravel

Eel Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Profile

Eel silt loam, on a nearly level slope, in a cultivated field; 220 feet south and 540 feet east of the northwest corner of sec. 15, T. 21 N., R. 13 E.; Randolph County, Indiana; USGS Ridgeville, Indiana, topographic quadrangle; lat. 40 degrees 16 minutes 43 seconds north and long. 85 degrees 4 minutes 20 seconds west, NAD 27; 663,884 easting and 4,460,492 northing, UTM zone 16, NAD 83.

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Ap2—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Bw1—10 to 15 inches; brown (10YR 4/3) loam; weak medium and coarse subangular blocky structure; friable; few fine roots; many fine pores; many fine faint brown (10YR 5/3) and few medium faint dark yellowish brown (10YR 4/4) masses that have accumulated iron and are in the matrix; slightly alkaline; clear smooth boundary.

Bw2—15 to 22 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; friable; few fine roots; many fine pores; few fine faint brown (10YR 4/3) masses that have accumulated iron and are in the matrix; few fine faint brown (7.5YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg—22 to 34 inches; dark gray (10YR 4/1) loam; moderate medium subangular blocky structure; friable; few fine and medium pores; thin strata of silty clay loam; few medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; few fine faint dark brown (7.5YR 3/2) masses that have accumulated manganese and are in the matrix; 1 percent gravel; neutral; clear smooth boundary.
BC—34 to 42 inches; pale brown (10YR 6/3) loam; weak medium subangular blocky structure; friable; thin strata of silty clay loam; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; 1 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
Cg—42 to 60 inches; light brownish gray (10YR 6/2) loam; massive; friable; thin strata of silty clay loam and sandy loam; few medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many fine faint gray (10YR 5/1) iron depletions in the matrix; 2 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5 (Where the A horizon is 2 to 5 inches thick, the value may be 2 or 3.)
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent

Bw and Bg horizons:
Hue—10YR
Value—4 or 5
Chroma—1 to 6
Texture—silt loam, loam, or clay loam; thin strata of silty clay loam or sandy loam
Content of rock fragments—0 to 5 percent

BC or BCg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 6
Texture—commonly silt loam, loam, fine sandy loam, or sandy loam; thin strata of textures ranging from silty clay loam to very fine sandy loam
Content of rock fragments—0 to 7 percent

C or Cg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture—commonly loam, fine sandy loam, or sandy loamy; strata of silt loam, silty clay loam, clay loam, loamy sand, loamy fine sand, sand, or fine sand
Content of rock fragments—0 to 14 percent

Eldean Series

Taxonomic class: Fine, mixed, superactive, mesic Typic Hapludalfs

Typical Profile

Eldean silt loam, on a nearly level slope, in a cultivated field; 500 feet west and 600 feet south of the northeast corner of sec. 23, T. 17 N., R. 9 E.; Henry County, Indiana; USGS New Castle West, Indiana, topographic quadrangle; lat. 39 degrees 54 minutes 56 seconds north and long. 85 degrees 27 minutes 49.6 seconds west, NAD 27; 631,297 easting and 4,419,520 northing, UTM zone 16, NAD 83.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
E—7 to 10 inches; grayish brown (10YR 5/2) loam; weak thin and medium platy structure; friable; common fine roots; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; clear wavy boundary.
Bt1—10 to 14 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common fine roots; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; about 12 percent gravel; slightly acid; clear wavy boundary.
Bt2—14 to 22 inches; brown (7.5YR 4/4) clay; moderate medium subangular blocky structure; firm; common fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; about 12 percent gravel; strongly acid; clear wavy boundary.
Bt3—22 to 26 inches; dark reddish brown (5YR 3/4) sandy clay; weak medium subangular blocky structure; firm; common fine roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 10 percent gravel; strongly acid; clear wavy boundary.
BCt—26 to 31 inches; dark reddish brown (5YR 3/3) gravelly sandy clay loam; weak medium

subangular blocky structure; friable; common fine roots; few faint dark reddish brown (5YR 3/2) clay films on face of peds; about 15 percent gravel; neutral; clear wavy boundary.

2C—31 to 60 inches; yellowish brown (10YR 5/4) gravelly loamy coarse sand; single grain; loose; about 30 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 18 to 36 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or loam
Content of rock fragments—0 to 13 percent

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 13 percent

Bt horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—3 to 6
Texture—clay, clay loam, sandy clay, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—0 to 30 percent in the upper part and 10 to 40 percent in the lower part

BCt or BC horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—2 to 4
Texture—clay loam, sandy clay loam, sandy loam, loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—10 to 40 percent

2C horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—gravelly coarse sandy loam to extremely gravelly coarse sand or stratified with these textures; thin strata of sand or loamy sand in some pedons
Content of rock fragments—0 to 70 percent in individual strata with an average of 30 to 70 percent throughout the horizon

Fox Series

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs

Typical Profile

Fox loam, in a gently sloping area, in a cultivated field; 2,050 feet south and 1,050 feet west of the northeast corner of sec. 36, T. 21 N., R. 8 E.; Delaware County, Indiana; USGS Gilman, Indiana, topographic quadrangle; lat. 40 degrees 13 minutes 40 seconds north and long. 85 degrees 33 minutes 37.2 seconds west, NAD 27; 622,484 easting and 4,454,038 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; brown (10YR 4/3) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; few fine roots; about 3 percent gravel; slightly acid; abrupt smooth boundary.

Bt1—10 to 19 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; about 7 percent gravel; slightly acid; clear wavy boundary.

Bt2—19 to 26 inches; brown (7.5YR 4/4) gravelly clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; about 18 percent gravel; moderately acid; clear wavy boundary.

Bt3—26 to 31 inches; dark yellowish brown (10YR 3/4) gravelly sandy clay loam; weak fine subangular blocky structure; firm; few fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; about 25 percent gravel; slightly acid; abrupt irregular boundary.

2C—31 to 80 inches; yellowish brown (10YR 5/4) gravelly coarse sand; single grain; loose; about 30 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Content of rock fragments: 0 to 34 percent gravel in the loamy mantle; 0 to 95 percent gravel, averaging 15 to 70 percent; and 0 to 50 percent

cobbles in individual strata in the stratified outwash

Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4 (6 or more when dry)
Chroma—2 or 3
Texture—silt loam, loam, or clay loam

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, loam, sandy loam, or the gravelly analogs of these textures

Bt horizon, upper part:
Hue—5YR to 10YR
Value—3 to 5
Chroma—4
Texture—loam, clay loam, sandy clay loam, or the gravelly analogs of these textures; or, where there is a loess mantle, silt loam or silty clay loam

Bt horizon, lower part:
Hue—5YR to 10YR
Value—3 or 4
Chroma—3 or 4
Texture—loam, clay loam, sandy clay loam, or the gravelly analogs of these textures; or, in the lower part, sandy loam or gravelly sandy loam

Btk or BCt horizon, where present:
Hue—5YR to 10YR
Value—3 or 4
Chroma—3 or 4
Texture—loam, sandy loam, sandy clay loam, or the gravelly analogs of these textures

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 7
Chroma—3 or 4
Texture—stratified sand or coarse sand or the gravelly to extremely gravelly analogs of these textures; or strata of gravel or sand

Gessie Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts

Typical Profile

Gessie silt loam, on a nearly level slope, in a cultivated field; 650 feet north and 70 feet east of the old Mississinewa River bridge in Francis Godfroy Reserve; sec. 9, T. 27 N., R. 4 E.; Miami County, Indiana; USGS Peru, Indiana, topographic quadrangle; lat. 40 degrees 45 minutes 29 seconds north and long. 86 degrees 1 minute 23 seconds west, NAD 27; 582,462 easting and 4,512,364 northing, UTM zone 16, NAD 83.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; weak fine and medium granular structure; friable; few fine roots; slightly effervescent; slightly alkaline; abrupt smooth boundary.

A—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; firm; few fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

Bw1—10 to 33 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few fine roots; few fine shell fragments; slightly effervescent; slightly alkaline; clear smooth boundary.

Bw2—33 to 43 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; strongly effervescent; slightly alkaline; clear smooth boundary.

C—43 to 60 inches; brown (10YR 5/3) silt loam; massive; friable; thin strata of sandy loam and loamy sand; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: 30 to 60 inches
Carbonates: Present throughout the profile

Ap and A horizons:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 3 percent

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or loam
Content of rock fragments—0 to 3 percent

C horizon:
Hue—10YR
Value—5

Chroma—3 or 4
Texture—silt loam, loam, or sandy loam; thin strata of loamy sand or sand
Content of rock fragments—0 to 10 percent

Glynwood Series

Taxonomic class: Fine, illitic, mesic Aquic Hapludalfs

Typical Profile

Glynwood silt loam, on a convex slope of 2 percent, in a cultivated field; 500 feet east and 900 feet north of the southwest corner of sec. 17, T. 5 S., R. 5 E.; Auglaize County, Ohio; USGS Moulton, Ohio, topographic quadrangle; lat. 40 degrees 36 minutes 00 seconds north and long. 84 degrees 18 minutes 57 seconds west, NAD 27; 727,119 easting and 4,497,824 northing, UTM zone 16, NAD 83 (fig. 33).

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; weak fine granular structure; friable; many roots; few fine faint black (10YR 2/1) iron and manganese oxide concretions in the matrix; 2 percent gravel; neutral; abrupt smooth boundary.

E—7 to 9 inches; brown (10YR 4/3) silt loam; weak very thin platy structure; friable; many roots; few fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; few fine distinct black (10YR 2/1) manganese oxide concretions and few fine faint dark brown (10YR 3/3) iron and manganese oxide concretions in the matrix; many wormcasts; 1 percent gravel; slightly acid; abrupt wavy boundary.

BE—9 to 12 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate medium and fine subangular blocky; firm; common roots; many faint pale brown (10YR 6/3) and brown (10YR 5/3) skeletans on faces of peds; common medium distinct yellowish brown (10YR 5/6) and prominent yellowish brown (10YR 5/8) masses that have accumulated iron and are in the matrix; 1 percent gravel; moderately acid; clear smooth boundary.

2Bt1—12 to 16 inches; dark yellowish brown (10YR 4/4) silty clay; moderate medium prismatic structure parting to strong medium angular blocky; firm; common roots; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common faint pale brown (10YR 6/3) skeletans on faces of prisms; few fine distinct strong brown (7.5YR 5/6) masses that have accumulated iron and are in the matrix; many fine distinct black (10YR 2/1) iron and manganese oxide concretions in the matrix; 1 percent gravel; strongly acid; clear smooth boundary.

2Bt2—16 to 20 inches; dark yellowish brown (10YR 4/4) clay; moderate and strong medium prismatic structure parting to strong coarse angular blocky; firm; common roots; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; few faint pale brown (10YR 6/3) skeletans on faces of prisms; many fine distinct black (10YR 2/1) iron and manganese oxide concretions in the matrix; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent gravel; slightly acid; clear smooth boundary.

2Bt3—20 to 23 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to moderate coarse angular blocky; firm; few roots; many faint brown (10YR 5/3) and dark brown (10YR 3/3) and distinct grayish brown (10YR 5/2) clay films on faces of peds and in pores; many fine distinct black (10YR 2/1) iron and manganese oxide concretions in the matrix; 2 percent gravel; slightly alkaline; clear wavy boundary.

2BCt1—23 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; few roots; common faint brown (10YR 4/3) and distinct grayish brown (10YR 5/2) clay films on faces of peds and in pores; common fine distinct yellowish brown (10YR 5/6) and common fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron and are in the matrix; many fine distinct black (10YR 2/1) iron and manganese oxide concretions in the matrix; 3 percent gravel; strongly effervescent; moderately alkaline; clear smooth boundary.

2BCt2—27 to 32 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; very firm; few roots; very few faint dark brown (10YR 3/3) clay films on faces of peds and in pores; common faint pale brown (10YR 6/3) carbonate coatings on faces of prisms; few distinct gray (10YR 6/1) carbonate coatings overlying the pale brown coatings in a dendritic pattern; few fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many fine distinct black (10YR 2/1) iron and manganese oxide concretions in the matrix; 3 percent gravel; strongly effervescent; moderately alkaline; clear smooth boundary.

2Cd—32 to 80 inches; yellowish brown (10YR 5/4) clay loam; massive but with widely spaced vertical fractures and horizontal platy tendencies; very firm; few distinct pale brown (10YR 6/3) and gray (5Y 5/1) carbonate coatings on faces of fractures; few prominent strong brown (7.5YR 5/6 and 5/8) hypocoats beneath the carbonate coatings; few fine distinct black (10YR 2/1) iron and manganese oxides concretions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: Commonly 25 to 36 inches but ranges from 20 to 42 inches
Depth to carbonates: Commonly 16 to 30 inches but ranges from 10 to 40 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—commonly silt loam in eroded areas and clay loam in severely eroded areas
Content of rock fragments—0 to 5 percent

E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent

BE horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Texture—silt loam, loam, or silty clay loam
Content of rock fragments—0 to 5 percent

2Bt, 2Btg, Btg, or Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 6 (Chroma of 2 is not dominant in the upper 10 inches of the argillic horizon.)
Texture—clay, clay loam, silty clay loam, or silty clay
Content of rock fragments—0 to 10 percent

2BCt or BC horizon, where present:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—commonly clay loam or silty clay loam; less commonly clay or silty clay
Content of rock fragments—1 to 14 percent

2Cd or Cd horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 14 percent

Haney Series

Taxonomic class: Fine-loamy, mixed, active, mesic Aquic Hapludalfs

Typical Profile

Haney silt loam, on a convex slope of less than 1 percent, in a cultivated field; 1,450 feet west and 950 feet north of the southeast corner of sec. 1, T. 21 N., R. 9 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 17 minutes 40 seconds north and long. 85 degrees 26 minutes 56 seconds west, NAD 27; 631,836 easting and 4,461,598 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to weak fine granular; friable; many fine roots; common fine interstitial pores; slightly acid; abrupt smooth boundary.

BE—8 to 15 inches; brown (10YR 5/3) silt loam; moderate fine and medium subangular blocky structure; friable; many fine roots; common fine interstitial pores; common distinct brown (10YR 4/3) organic coatings on faces of peds and in pores; slightly acid; clear wavy boundary.

Bt1—15 to 30 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine interstitial pores; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few distinct brown (10YR 4/3) organic coatings in root channels and in pores; many fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are throughout the horizon; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; about 3 percent gravel; moderately acid; gradual wavy boundary.

Bt2—30 to 36 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse subangular blocky structure; firm; common fine roots; few fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are throughout the horizon;

common medium distinct grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2) iron depletions in the matrix; about 3 percent gravel; slightly acid; clear wavy boundary.

BC—36 to 45 inches; brown (10YR 5/3) gravelly loam; weak coarse subangular blocky structure; friable; few very fine roots; common fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are throughout the horizon; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; about 20 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

C—45 to 80 inches; pale brown (10YR 6/3) stratified gravelly sandy loam and loamy sand; massive; very friable; thin strata of sand; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; about 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: Commonly 30 to 44 inches but ranges from 24 to 44 inches
Depth to carbonates: 30 to 44 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 14 percent fine and medium gravel

BE or E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 14 percent fine and medium gravel

Bt or Btg horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6 or, in lower part, 2
Texture—clay loam, sandy clay loam, loam, or the gravelly analogs of these textures
Content of rock fragments—2 to 34 percent fine and medium gravel

BCg or BC horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture—gravelly analogs of clay loam, sandy clay loam, or loam
Content of rock fragments—15 to 34 percent fine and medium gravel

C, Cg, 2C, or 2Cg horizon:
Hue—7.5YR or 10YR
Value—4 to 7
Chroma—1 to 8
Texture—sandy loam, loamy sand, or the gravelly or very gravelly analogs of these textures in thick strata; sandy loam, silt loam, sandy clay loam, loam, loamy sand, or sand in thin strata
Content of rock fragments—10 to 40 percent fine and medium gravel

Houghton Series

Taxonomic class: Euic, mesic Typic Haplosaprists

Typical Profile

Houghton muck, in a level area, in a cultivated field; 200 feet north and 400 feet east of the southwest corner of sec. 12, T. 5 N., R. 1 W.; Clinton County, Michigan; USGS Bath, Michigan, topographic quadrangle; lat. 42 degrees 49 minutes 42.69 seconds north and long. 84 degrees 22 minutes 53.53 seconds west, NAD 27; 714,027 easting and 4,745,102 northing, UTM zone 16, NAD 83.

Oa1—0 to 9 inches; black (N 2.5/0) (broken face and rubbed) muck (sapric material); about 5 percent fiber, a trace rubbed; weak coarse subangular blocky structure; neutral (pH 7.0 in KCl); abrupt smooth boundary.

Oa2—9 to 13 inches; black (N 2.5/0) (broken face) muck (sapric material), very dark brown (7.5YR 2.5/2) rubbed; about 5 percent fiber, a trace rubbed; weak medium granular structure; neutral (pH 7.0 in KCl); abrupt smooth boundary.

Oa3—13 to 24 inches; dark reddish brown (5YR 3/2) (broken face) muck (sapric material), dark reddish brown (5YR 2.5/2) rubbed; about 15 percent fiber, less than 5 percent rubbed; massive, breaking to thick platy fragments; neutral (pH 7.0 KCl); abrupt smooth boundary.

Oa4—24 to 32 inches; black (5YR 2.5/1) (broken face and rubbed) muck (sapric material); about 10 percent fiber, a trace rubbed; massive; about 1 percent woody fragments; neutral (pH 7.0 in KCl); clear wavy boundary.

Oa5—32 to 48 inches; dark reddish brown (5YR 2.5/2) (broken face) muck (sapric material), black (5YR 2.5/1) rubbed; about 20 percent fiber, less than 10

percent rubbed; massive, breaking to thick platy fragments; neutral (pH 7.0 in KCl); abrupt smooth boundary.

Oa6—48 to 80 inches; dark reddish brown (5YR 2.5/2) (broken face and rubbed) muck (sapric material); about 10 percent fiber, less than 10 percent rubbed; massive; slightly sticky; about 15 percent mineral soil; neutral (pH 7.0 in KCl).

Range in Characteristics

Thickness of the organic material: 51 to more than 80 inches

Oa horizon:
Hue—5YR to 10YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 3
Texture—muck (sapric material)

Lash Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Profile

Lash silt loam, on a nearly level slope, in a cultivated field; 630 feet west and 1,500 feet south of the northeast corner of sec. 25, T. 23 N., R. 6 W.; Tippecanoe County, Indiana; USGS Otterbein, Indiana, topographic quadrangle; lat. 40 degrees 24 minutes 45 seconds north and long. 87 degrees 2 minutes 17 seconds west, NAD 27; 496,771 easting and 4,473,546 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many very fine roots; strongly effervescent; moderately alkaline; abrupt smooth boundary.

A—10 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; common very fine roots; many very fine vesicular pores; about 30 percent fine and medium sand; strongly effervescent; moderately alkaline; clear smooth boundary.

Bw1—14 to 31 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; many very fine vesicular pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; about 35 percent fine and medium sand; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bw2—31 to 52 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; many very fine tubular pores; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; strongly effervescent; moderately alkaline; gradual smooth boundary.

2C—52 to 60 inches; brown (10YR 4/3) loamy sand; single grain; very friable; common very fine tubular pores; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 23 inches
Depth to the base of the cambic horizon: 40 to 60 inches
Carbonates: Present throughout the profile

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—commonly silt loam or loam; less commonly fine sandy loam
Calcium carbonate equivalent—5 to 10 percent

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam, loam, fine sandy loam, or sandy loam
Calcium carbonate equivalent—10 to 20 percent

C or 2C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or fine sand or stratified with these textures
Calcium carbonate equivalent—10 to 20 percent
Content of rock fragments—0 to 13 percent

Lickcreek Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Argiudolls

Typical Profile

Lickcreek silt loam, on a slope of 0.5 percent, in a cultivated field; 1,725 feet south and 1,200 feet west of the northeast corner of sec. 12, T. 22 N., R. 9 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 22 minutes 27 seconds north and long. 85 degrees 26 minutes 55

seconds west, NAD 27; 631,705 easting and 4,470,448 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium granular structure; friable; few fine roots; neutral; abrupt smooth boundary.

A—10 to 19 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; few fine roots; neutral; clear wavy boundary.

Bt1—19 to 27 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; few fine roots; common very fine and fine tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; common distinct dark brown (10YR 3/3) organic coatings on faces of peds and in pores; neutral; clear wavy boundary.

2Bt2—27 to 39 inches; brown (7.5YR 4/4) clay loam; moderate fine subangular blocky structure; friable; few fine roots; common very fine and fine tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 6 percent gravel; slightly acid; clear wavy boundary.

2Bt3—39 to 48 inches; brown (7.5YR 4/4) gravelly sandy clay loam; moderate medium subangular blocky structure; firm; common very fine interstitial pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 16 percent gravel; neutral; clear wavy boundary.

2Bt4—48 to 54 inches; dark brown (10YR 3/3) gravelly sandy clay loam; weak medium subangular blocky structure; friable; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 25 percent gravel; neutral; clear wavy boundary.

2C—54 to 80 inches; brown (10YR 5/3) very gravelly sandy loam; massive; very friable; 50 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the argillic horizon: 30 to 60 inches
Depth to carbonates: 40 to 70 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—commonly silt loam or less commonly loam
Content of rock fragments—0 to 7 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silty clay loam, clay loam, sandy clay loam, or loam
Content of rock fragments—0 to 10 percent

2Bt or 2BCt horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—loam, clay loam, sandy clay loam, or sandy loam, or the gravelly analogs of these textures
Content of rock fragments—3 to 34 percent

2C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—very gravelly or gravelly analogs of sandy loam, coarse sandy loam, or loamy coarse sand
Content of rock fragments—15 to 59 percent

Losantville Series

Taxonomic class: Clayey, mixed, active, mesic, shallow Oxyaquic Hapludalfs

Typical Profile

Losantville silt loam, on a slope of 4 percent, in a cultivated field; 45 feet west and 738 feet south of the northeast corner of sec. 7, T. 16 N., R. 12 E.; Henry County, Indiana; USGS Cambridge City, Indiana, topographic quadrangle; lat. 39 degrees 51 minutes 33.4 seconds north and long. 85 degrees 13 minutes 15.6 seconds west, NAD 27; 652,174 easting and 4,413,659 northing, UTM zone 16, NAD 83.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common fine and medium roots; 4 percent gravel; neutral; abrupt smooth boundary.

Bt1—7 to 12 inches; dark yellowish brown (10YR 4/4) clay; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many faint dark yellowish brown (10YR 3/4) clay films on faces of peds; 3 percent gravel; neutral; clear wavy boundary.

Bt2—12 to 16 inches; dark yellowish brown (10YR 4/4) clay; moderate medium subangular blocky structure; firm; many faint brown (10YR 4/3) clay

films on faces of peds; 4 percent gravel; neutral; abrupt wavy boundary.

Cd—16 to 60 inches; yellowish brown (10YR 5/4) loam; massive; very firm; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 12 to 20 inches

Depth to carbonates: 8 to 20 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Texture—clay loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay or clay loam
Content of rock fragments—1 to 12 percent

Cd horizon:
Hue—10YR
Value—5 or 6
Chroma—3 to 6
Texture—loam
Content of rock fragments—2 to 12 percent

Lybrand Series

Taxonomic class: Fine, illitic, mesic Typic Hapludalfs

Typical Profile

Lybrand silt loam, on a slope of 16 percent, in a grassed area; 550 feet north and 1,000 feet west of the intersection of U.S. Highway 36 and Ohio Highway 257; Delaware County, Ohio; USGS Ostrander, Ohio, topographic quadrangle; lat. 40 degrees 16 minutes 24.4 seconds north and long. 83 degrees 9 minutes 50.5 seconds west, NAD 27; 316,018 easting and 4,460,360 northing, UTM zone 17, NAD 83.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine and very fine roots; 2 percent gravel; neutral; abrupt smooth boundary.

Bt1—9 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; few distinct brown (7.5YR 4/2) clay films on faces of peds; common distinct brown (10YR 4/3) organic coatings on faces of peds; 2 percent gravel; neutral; clear smooth boundary.

Bt2—13 to 21 inches; yellowish brown (10YR 5/4) silty clay; strong medium and fine subangular blocky structure; firm; common very fine roots; many distinct brown (7.5YR 4/2 and 4/4) clay films on faces of peds; 2 percent gravel; neutral; gradual smooth boundary.

Bt3—21 to 27 inches; yellowish brown (10YR 5/4) silty clay; weak medium prismatic structure parting to strong medium subangular blocky; firm; few very fine roots; many distinct brown (7.5YR 4/2 and 4/4) clay films on faces of peds; 2 percent gravel; slightly alkaline; gradual wavy boundary.

Bt4—27 to 33 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to strong medium subangular blocky; firm; few very fine roots; many distinct brown (7.5YR 4/2 and 4/4) clay films on faces of peds; 2 percent gravel; moderately alkaline; gradual wavy boundary.

BCt—33 to 45 inches; yellowish brown (10YR 5/4) silty clay loam; weak thick platy structure parting to weak fine subangular blocky; firm; few very fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct grayish brown (10YR 5/2) carbonate coatings on faces of peds; very few distinct light gray (10YR 7/1) carbonate coatings in old root channels; few medium prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; few distinct light gray (10YR 7/1) carbonate threads and accumulations in the matrix; 5 percent limestone and shale gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

Cd—45 to 80 inches; brown (10YR 5/3) silty clay loam; massive but with weak thick platy partings and widely spaced vertical fractures; very firm; common distinct light gray (10YR 7/2) carbonate coatings on vertical fractures; few medium prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; common faint very dark grayish brown (10YR 3/2) masses that have accumulated iron and manganese and are on faces of vertical fractures; common faint grayish brown (10YR 5/2) iron depletions on vertical fractures; 5 percent limestone and shale gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 24 to 50 inches
Depth to carbonates: Commonly 20 to 40 inches but ranges from 16 to 40 inches

Ap horizon:
Hue—10YR
Value—2 to 4
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silty clay loam, clay loam, silty clay, or clay
Content of rock fragments—0 to 10 percent

BCt or BC horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or clay loam
Content of rock fragments—0 to 10 percent

Cd horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or clay loam
Content of rock fragments—2 to 14 percent

Martinsville Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Profile

Martinsville loam, on a slope of 1 percent, in a cultivated field; 1,050 feet north and 2,000 feet west of the southeast corner of sec. 22, T. 16 N., R. 2 W.; Hendricks County, Indiana; USGS Danville, Indiana, topographic quadrangle; lat. 39 degrees 48 minutes 26 seconds north and long. 86 degrees 37 minutes 16 seconds west, NAD 27; 532,432 easting and 4,406,435 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few fine roots; neutral; abrupt smooth boundary.
BE—8 to 13 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; few fine roots; neutral; clear wavy boundary.
Bt1—13 to 17 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine subangular blocky structure; firm; few fine roots; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear wavy boundary.
Bt2—17 to 35 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; strongly acid; gradual wavy boundary.
Bt3—35 to 43 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate coarse subangular blocky structure; friable; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; moderately acid; clear wavy boundary.
BC—43 to 53 inches; dark yellowish brown (10YR 3/4) sandy loam; weak coarse subangular blocky structure; very friable; slightly acid; clear wavy boundary.
C—53 to 60 inches; brown (10YR 5/3), pale brown (10YR 6/3), and dark yellowish brown (10YR 3/4) stratified sandy loam, loam, and silt loam; massive; very friable; thin strata of sand; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: Commonly 50 to 60 inches but ranges from 40 to 70 inches
Content of rock fragments: 0 to 10 percent throughout the series control section

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Texture—loam

Bt and BE horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sandy clay loam, loam, or clay loam

BC or BCt horizon, where present:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—loam, silt loam, sandy loam, sandy clay loam, fine sandy loam, or very fine sandy loam

C horizon:
Hue—10YR
Value—4 to 6

Chroma—3 to 6
Texture—commonly stratified fine sandy loam, sandy loam, loam, or silt loam; thin strata of silt, fine sand, loamy sand, loamy fine sand, very fine sandy loam, coarse sand, or sand

Miami Series

Taxonomic class: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Profile

Miami silt loam, on a convex slope of 3 percent, in a cultivated field; 800 feet west and 300 feet south of the northeast corner of sec. 6, T. 15 N., R. 1 E.; Hendricks County, Indiana; USGS Brownsburg, Indiana, topographic quadrangle; lat. 39 degrees 46 minutes 31.5 seconds north and long. 86 degrees 27 minutes 37.2 seconds west, NAD 27; 546,217 easting and 4,402,976 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 1 percent gravel; moderately acid; abrupt wavy boundary.

2Bt2—13 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; strong coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 2 percent gravel; strongly acid; clear wavy boundary.

2Bt3—23 to 31 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; common fine and medium rounded very dark gray (10YR 3/1) masses that have accumulated iron and manganese and are in the matrix; 5 percent gravel; moderately acid; clear wavy boundary.

2BCt—31 to 36 inches; brown (10YR 4/3) loam; weak coarse prismatic structure; friable; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese and are in the matrix; common medium faint light brownish gray (10YR 6/2) irregularly shaped iron depletions in the matrix; 5 percent gravel; slightly effervescent; slightly alkaline; clear irregular boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; few fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese and are in the matrix; common medium faint grayish brown (10YR 5/2) irregularly shaped iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 24 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam or silt loam
Content of rock fragments—0 to 5 percent

Bt and 2Bt horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 10 percent

BCt or 2BCt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Cd or 2Cd horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Miamian Series

Taxonomic class: Fine, mixed, active, mesic Oxyaquic Hapludalfs

Typical Profile

Miamian silt loam, on a northeast-facing, convex slope of 3 percent, in a cultivated field; 980 feet north and 1,735 feet east of the southwest corner of

Figure 31.—Profile of a soil in the Belmore series. Measurements are in centimeters.

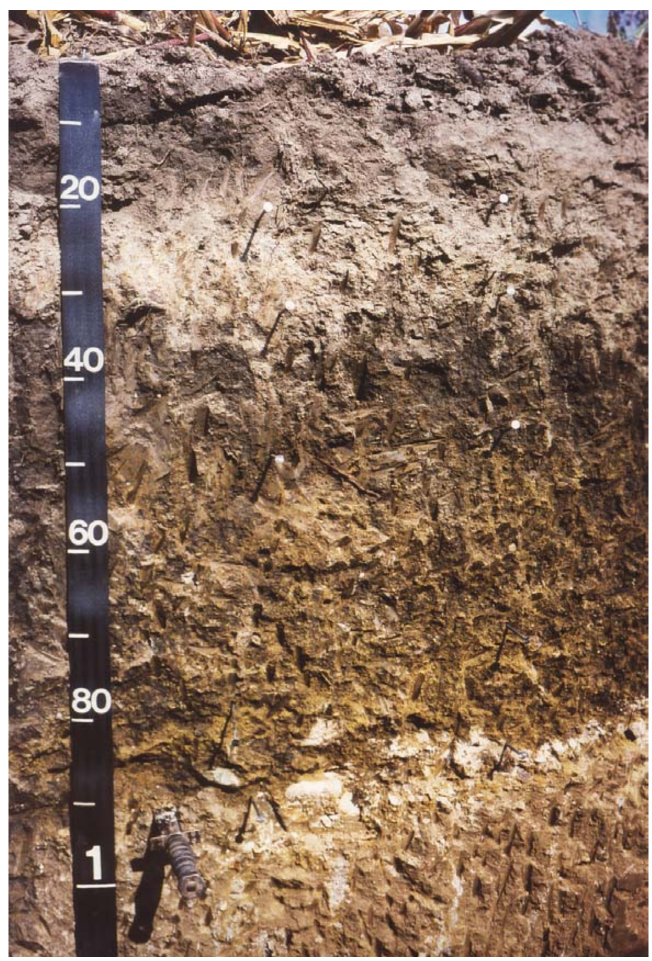


Figure 32.—Profile of a soil in the Blount series. The knife indicates the top of the dense till. Measurements are in centimeters.

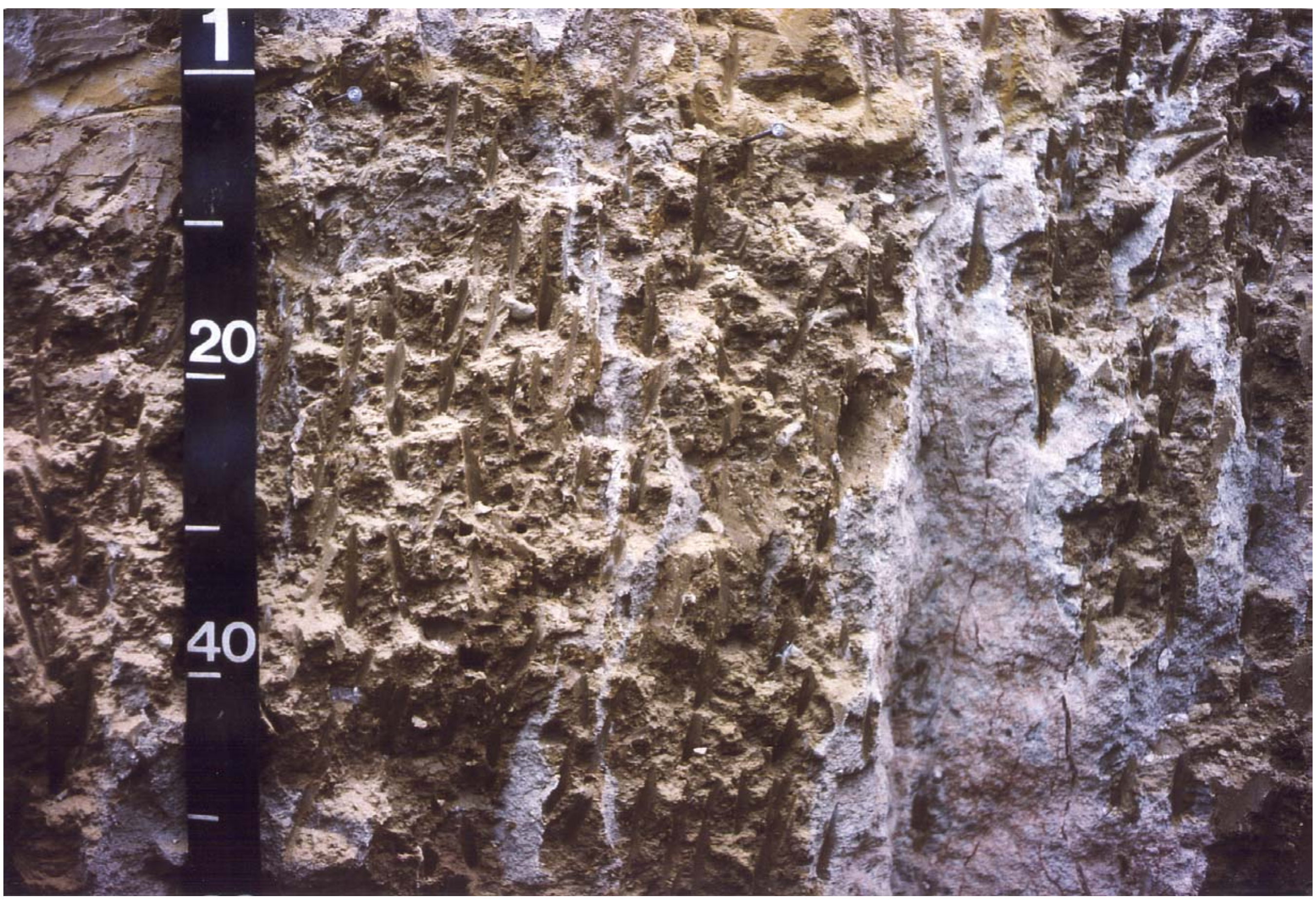


Figure 33.—Carbonate coatings along the fractures in the dense till of a soil in the Glynwood Series. Measurements are in centimeters.

Figure 34.—Profile of a soil in the Morley series. Measurements are in centimeters.

Figure 35.—Profile of a soil in the Ockley series. Tongues of material from the 2Bt horizon extend into calcareous sandy outwash. Measurements are in centimeters.

Figure 36.—Profile of a soil in the Southwest series. Lighter-colored overwash overlies the original dark-colored surface layer. Measurements are in centimeters.

Figure 37.—Profile of a soil in the Wawaka series. Measurements are in centimeters.

sec. 13, T. 6 N., R. 5 E.; Montgomery County, Ohio; 875 feet west and 490 feet north of the intersection of Meeker Road and Frederick Pike; USGS West Milton, Ohio, topographic quadrangle; lat. 39 degrees 52 minutes 45 seconds north and long. 84 degrees 16 minutes 4 seconds west, NAD 27; 733,652 easting and 4,417,925 northing, UTM zone 16, NAD 83.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure parting to weak fine granular; friable; common fine roots; 1 percent gravel; neutral; abrupt smooth boundary.

2Bt1—9 to 12 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; 1 percent gravel; neutral; clear smooth boundary.

2Bt2—12 to 18 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 2 percent gravel; moderately acid; clear wavy boundary.

2Bt3—18 to 26 inches; yellowish brown (10YR 5/4) clay; weak medium prismatic structure parting to strong medium angular and subangular blocky; firm; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 2 percent gravel; slightly acid; clear wavy boundary.

2BC—26 to 33 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; firm; common distinct brown (7.5YR 4/4) clay films on vertical faces of peds; few fine prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; many very pale brown (10YR 8/2) weathered remnants (calcium carbonate) in the matrix; 5 percent gravel; slightly effervescent; slightly alkaline; clear irregular boundary.

2Cd—33 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; few fine prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 18 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—loam or silt loam
Content of rock fragments—0 to 3 percent

Bt horizon (formed in loess), where present:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 3 percent

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam or clay
Content of rock fragments—1 to 10 percent

2BCt, 2BC, BCt, or BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam or loam
Content of rock fragments—2 to 14 percent

2Cd or Cd horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam
Content of rock fragments—2 to 14 percent

Milford Series

Taxonomic class: Fine, mixed, superactive, mesic Typic Endoaquolls

Typical Profile

Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes, in a cultivated field; 140 feet north and 1,060 feet east of the southwest corner of sec. 18, T. 22 N., R. 9 E.; Delaware County, Indiana; USGS Gaston, Indiana, topographic quadrangle; lat. 40 degrees 20 minutes 3 seconds north and long. 85 degrees 33 minutes 19 seconds west, NAD 27; 622,722 easting and 4,465,852 northing, UTM zone 16, NAD 83.

Ap1—0 to 4 inches; very dark gray (10YR 3/1) (rubbed) silty clay loam, gray (10YR 5/1) dry; weak medium granular structure parting to weak fine granular; friable; few fine roots; common very

fine and fine interstitial and tubular pores; neutral; clear smooth boundary.

Ap2—4 to 11 inches; very dark gray (10YR 3/1) (rubbed) silty clay loam, gray (10YR 5/1) dry; weak medium angular blocky structure; firm; few fine roots; common very fine and fine interstitial and tubular pores; neutral; abrupt smooth boundary.

Bg1—11 to 19 inches; dark gray (N 4/0) silty clay; moderate fine angular blocky structure; firm; few fine roots; few very fine and fine tubular pores; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many medium prominent yellowish brown (10YR 5/6) and few medium prominent strong brown (7.5YR 5/8) masses that have accumulated iron and have diffuse boundaries; neutral; clear wavy boundary.

Bg2—19 to 29 inches; gray (N 5/0) silty clay; moderate medium subangular blocky structure; firm; few fine roots; few very fine and fine tubular pores; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses that have accumulated iron and have diffuse boundaries; neutral; gradual wavy boundary.

Bg3—29 to 43 inches; gray (10YR 5/1) silty clay loam; weak coarse subangular blocky structure; firm; few very fine and fine tubular pores; few distinct dark gray (10YR 4/1) pressure faces on faces of peds; few distinct very dark gray (10YR 3/1) organic coatings on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses that have accumulated iron and have diffuse boundaries; neutral; gradual wavy boundary.

Cg1—43 to 58 inches; gray (10YR 5/1) silt loam; massive; friable; many coarse distinct yellowish brown (10YR 5/4) masses that have accumulated iron and have diffuse boundaries; strongly effervescent; slightly alkaline; clear wavy boundary.

2Cg2—58 to 80 inches; gray (10YR 5/1) stratified silt loam, fine sandy loam, and loamy fine sand; massive; friable; common coarse distinct yellowish brown (10YR 5/4) masses that have accumulated iron and have diffuse boundaries; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Depth to the base of the cambic horizon: Commonly 42 to 50 inches but ranges from 36 to 60 inches

Depth to carbonates: Commonly 40 to 48 inches but ranges from 28 to more than 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or mucky silty clay

Bg horizon:
Hue—10YR or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay loam

Cg and 2Cg horizons:
Hue—10YR or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, clay loam, or loam in the till substratum phase; stratified sand to silt loam in the stratified sandy substratum phase; and silt loam in the pothole phase

Millgrove Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Profile

Millgrove silty clay loam, 0 to 1 percent slopes, in a cultivated field; 250 feet west and 150 feet north of the southeast corner of sec. 21, T. 22 N., R. 10 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 20 minutes 7 seconds north and long. 85 degrees 23 minutes 22 seconds west, NAD 27; 636,807 easting and 4,466,221 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; friable; common fine roots; 2 percent gravel; neutral; abrupt smooth boundary.

A—8 to 15 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; friable; common fine roots; common fine faint brown (10YR 4/3) masses that have accumulated iron and have diffuse boundaries; common fine faint dark grayish brown (10YR 4/2) irregularly shaped iron depletions throughout; 2 percent gravel; neutral; clear wavy boundary.

Btg1—15 to 20 inches; dark grayish brown (10YR 4/2) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent dark yellowish brown

(10YR 4/6) masses that have accumulated iron and are throughout the horizon; 5 percent gravel; neutral; clear wavy boundary.

Btg2—20 to 32 inches; grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; few fine and very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses that have accumulated iron and are throughout the horizon; 5 percent gravel; neutral; clear wavy boundary.

Btg3—32 to 42 inches; grayish brown (10YR 5/2) gravelly loam; weak medium subangular blocky structure; friable; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are throughout the horizon; 20 percent gravel; neutral; clear wavy boundary.

BCg—42 to 48 inches; dark grayish brown (2.5Y 4/2) gravelly clay loam; weak coarse subangular blocky structure; friable; strata of gravelly loam; many coarse prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are throughout the horizon; 20 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg—48 to 80 inches; gray (10YR 5/1) gravelly sandy loam; massive; very friable; common medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are throughout the horizon; common medium faint dark grayish brown (10YR 4/2) irregularly shaped iron depletions throughout; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches
Depth to the base of the argillic horizon: Commonly 40 to 50 inches but ranges from 30 to 55 inches
Depth to carbonates: 30 to 60 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam, loam, or silt loam
Content of rock fragments—2 to 13 percent

Btg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 or 2
Texture—loam, clay loam, sandy clay loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—2 to 13 percent in the upper part and 7 to 40 percent in the lower part

BCg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 or 2
Texture—clay loam, loam, sandy loam, sandy clay loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—7 to 40 percent

Cg or 2Cg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 or 2
Texture—commonly sandy loam, coarse sandy loam, loamy sand, loam, or the gravelly or very gravelly analogs of these textures; strata of sand, coarse sand, loamy coarse sand, fine sand, silt loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—10 to 40 percent

Mississinewa Series

Taxonomic class: Clayey, illitic, mesic, shallow Aquic Hapludalfs

Typical Profile

Mississinewa clay loam, on a slope of 4 percent, in a cultivated field; 100 feet east and 325 feet north of the southwest corner of sec. 7, T. 21 N., R. 11 E.; Delaware County, Indiana; USGS Eaton, Indiana, topographic quadrangle; lat. 40 degrees 16 minutes 42 seconds north and long. 85 degrees 19 minutes 48 seconds west, NAD 27; 641,975 easting and 4,459,994 northing, UTM zone 16, NAD 83.

Ap—0 to 5 inches; brown (10YR 4/3) clay loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; firm; common very fine roots; common very fine tubular pores; 2 percent gravel; very slightly effervescent; neutral; abrupt smooth boundary.

Bt—5 to 10 inches; yellowish brown (10YR 5/4) clay loam; moderate medium angular blocky structure; firm; common very fine roots; common very fine tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common fine irregular black (10YR 2/1)

masses that have accumulated iron and manganese oxide and are in the matrix; 2 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

BCt—10 to 14 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few very fine roots in cracks; few very fine tubular pores; few distinct brown (10YR 4/3) clay films and light gray (10YR 7/2) carbonate coatings on faces of peds; common fine irregular black (10YR 2/1) masses that have accumulated iron and manganese oxide and are in the matrix; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline; clear smooth boundary.

Cd—14 to 80 inches; yellowish brown (10YR 5/4) clay loam; massive; very firm; few distinct light gray (10YR 7/2) carbonate coatings on faces of cracks; few fine irregular black (10YR 2/1) masses that have accumulated iron and manganese oxide and are in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 10 to 20 inches
Depth to carbonates: 0 to 16 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay, clay loam, or silty clay loam
Content of rock fragments—0 to 5 percent

BCt or CB horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 10 percent

Cd horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 10 percent

Morley Series

Taxonomic class: Fine, illitic, mesic Oxyaquic Hapludalfs

Typical Profile

Morley silty clay loam, on a convex slope of 9 percent, in a cultivated field; 1,580 feet west and 1,360 feet south of the northeast corner of sec. 15, T. 25 N., R. 14 E.; Adams County, Indiana; USGS Berne, Indiana, topographic quadrangle; lat. 40 degrees 37 minutes 16 seconds north and long. 84 degrees 55 minutes 24 seconds west, NAD 27; 675,653 easting and 4,498,771 northing, UTM zone 16, NAD 83 (fig. 34).

Ap—0 to 9 inches; 80 percent dark grayish brown (10YR 4/2) and 20 percent dark yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; 1 percent gravel; moderately acid; abrupt smooth boundary.

Bt1—9 to 17 inches; dark yellowish brown (10YR 4/4) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct grayish brown (10YR 5/2) silt coatings on faces of peds; 1 percent gravel; very strongly acid; clear smooth boundary.

Bt2—17 to 20 inches; dark yellowish brown (10YR 4/4) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; 2 percent gravel; neutral; clear wavy boundary.

Bt3—20 to 29 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; strongly effervescent; slightly alkaline; clear wavy boundary.

Cd1—29 to 36 inches; yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure parting to weak very thick platy; very firm; very few distinct dark grayish brown (10YR 4/2) clay films and common distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

Cd2—36 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure; very firm; few distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—2 or 3
Texture—silt loam in eroded areas and clay loam in severely eroded areas
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay, clay loam, silty clay loam, or silty clay
Content of rock fragments—1 to 10 percent

Cd horizon:
Hue—10YR
Value—5
Chroma—3 or 4
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 10 percent

Mountpleasant Series

Taxonomic class: Fine, mixed, active, mesic Typic Hapludalfs

Typical Profile

Mountpleasant silt loam, on a slope of 1 percent, in a cultivated field; 1,500 feet west and 100 feet north of the southeast corner of sec. 23, T. 19 N., R. 10 E.; Delaware County, Indiana; USGS Mount Pleasant, Indiana, topographic quadrangle; lat. 40 degrees 4 minutes 37 seconds north and long. 85 degrees 21 minutes 19 seconds west, NAD 27; 640,240 easting and 4,437,599 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure; firm; common fine roots; common very fine interstitial and tubular pores; 3 percent gravel; neutral; clear smooth boundary.

2Bt1—8 to 12 inches; dark yellowish brown (10YR 4/6) clay; moderate fine subangular blocky structure; firm; common very fine and fine roots; common fine interstitial and tubular pores; many distinct dark brown (7.5YR 3/2) clay films on faces of peds; 3 percent gravel; neutral; clear smooth boundary.

2Bt2—12 to 16 inches; dark yellowish brown (10YR 4/4) clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots; common fine interstitial and tubular pores; many distinct dark brown (7.5YR 3/2) clay films on faces of peds and in pores; 5 percent gravel; moderately alkaline; clear smooth boundary.

2Bt3—16 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium and coarse subangular blocky structure; firm; common very fine and fine roots; common fine interstitial and tubular pores; common distinct very dark grayish brown (10YR 3/2) and many distinct dark brown (10YR 3/3) clay films on faces of peds; 10 percent gravel; slightly effervescent; moderately alkaline; clear smooth boundary.

2BCt/Bt—23 to 38 inches; 90 percent yellowish brown (10YR 5/4) loam (BCt); weak very coarse prismatic structure parting to weak coarse subangular blocky; firm; common very fine and fine roots; common very fine vesicular pores and common fine interstitial pores; common distinct dark brown (10YR 3/3) clay films on faces of peds; 10 percent gravel; 3 percent dolomite cobbles; strongly effervescent; 10 percent dark yellowish brown (10YR 4/4) clay loam (Bt); weak coarse subangular blocky structure; firm; common very fine and fine roots; common very fine and fine interstitial and tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds; 9 percent gravel; slightly effervescent; moderately alkaline; gradual wavy boundary.

2BCt—38 to 58 inches; yellowish brown (10YR 5/4) loam; weak very coarse prismatic structure parting to weak medium and coarse prismatic parting to weak medium and coarse angular blocky; firm; common very fine and fine roots; common very fine interstitial and tubular pores and few very fine vesicular pores; common distinct dark brown (10YR 3/3) clay films on vertical faces of peds; 12 percent gravel; 3 percent dolomite cobbles; violently effervescent; moderately alkaline; abrupt wavy boundary.

2CBt—58 to 86 inches; yellowish brown (10YR 5/4) loam; weak very coarse prismatic structure

parting to weak medium and coarse angular blocky; very firm; few fine roots between peds; common very fine interstitial and tubular pores and few very fine vesicular pores; common distinct dark brown (10YR 3/3) clay films on vertical faces of peds; 11 percent gravel; 3 percent dolomite cobbles; violently effervescent; moderately alkaline; abrupt smooth boundary.

3Bt—86 to 98 inches; dark brown (7.5YR 3/2) gravelly sandy clay loam; weak very fine subangular blocky structure; friable; common fine interstitial and tubular pores; many faint dark brown (7.5YR 3/2) clay films on faces of peds; 23 percent gravel; very slightly effervescent; moderately alkaline; clear wavy boundary.

3BCt—98 to 110 inches; dark yellowish brown (10YR 4/4) very gravelly coarse sandy loam; weak very fine subangular blocky structure; very friable; many distinct dark brown (7.5YR 3/2) clay bridgings between sand grains; 55 percent gravel; slightly effervescent; moderately alkaline; clear wavy boundary.

3C—110 to 118 inches; brown (10YR 5/3) very gravelly coarse sand; single grain; loose; strata of sand; 51 percent gravel; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to carbonates: 15 to 36 inches
Depth to the base of the argillic horizon: 20 to 48 inches
Depth to the base of soil development: More than 80 inches

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 7 percent

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—0 to 10 percent

2BCt/Bt horizon, Bt part:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—0 to 10 percent

2BCt/Bt horizon, 2BCt part, and 2BCt horizon:
Hue—10YR
Value—4 or 5
Chroma—4
Texture—loam or clay loam
Content of rock fragments—10 to 14 percent

2CBt horizon:
Hue—10YR
Value—4 or 5
Chroma—4
Texture—loam
Content of rock fragments—10 to 14 percent

3Bt and 3BCt horizons, where present:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—sandy clay loam, sandy loam, coarse sandy loam, loamy coarse sand, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—10 to 59 percent

3C horizon:
Hue—10YR
Value—5
Chroma—2 or 3
Texture—coarse sand, sand, loamy coarse sand, or the gravelly to extremely gravelly analogs of these textures
Content of rock fragments—10 to 70 percent

Muncie Series

Taxonomic class: Fine, mixed, active, mesic Typic Hapludalfs

Typical Profile

Muncie silt loam, on a convex slope of 5 percent, in a cultivated field; 2,200 feet south and 2,100 feet west of the northeast corner of sec. 33, T. 21 N., R. 11 E.; Delaware County, Indiana; USGS Muncie East, Indiana, topographic quadrangle; lat. 40 degrees 13 minutes 41 seconds north and long. 85 degrees 16 minutes 55 seconds west, NAD 27; 646,169 easting and 4,454,491 northing, UTM zone 16, NAD 83.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; many very fine and fine roots; many fine and very fine tubular pores; moderately acid; clear smooth boundary.

2Bt1—6 to 12 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular

blocky structure; firm; many very fine and fine roots; many fine and very fine tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 1 percent gravel; slightly acid; clear smooth boundary.

2Bt2—12 to 18 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium and coarse subangular blocky structure; firm; common very fine roots; common very fine tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 2 percent gravel; slightly acid; clear smooth boundary.

2Bt3—18 to 30 inches; brown (10YR 4/3) clay loam; moderate medium and coarse subangular blocky structure; firm; few very fine roots; few very fine tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 2 percent gravel; slightly alkaline; clear wavy boundary.

2BCt—30 to 37 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few very fine roots; few very fine tubular pores; few distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 5 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2C1—37 to 56 inches; yellowish brown (10YR 5/4) clay loam; massive but with weak coarse prismatic partings; firm; few distinct light gray (10YR 7/2) carbonate coatings on vertical partings; 5 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3C2—56 to 80 inches; brown (10YR 5/3) gravelly loamy coarse sand; single grain; loose; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to the base of the argillic horizon: 25 to 50 inches
Depth to carbonates: 17 to 48 inches
Depth to sandy or gravelly material: 48 to 96 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—3 or 4
Texture—silt loam or, in severely eroded areas, clay loam
Content of rock fragments—0 to 10 percent

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—0 to 10 percent

2BCt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silty clay loam or clay loam
Content of rock fragments—1 to 10 percent

2C horizon:
Hue—10YR
Value—5
Chroma—3 or 4
Texture—silty clay loam or clay loam
Content of rock fragments—1 to 10 percent

3Bt or 3BCt horizon, where present:
Where present, these horizons typically occur directly beneath vertical partings in the overlying till.
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—sandy clay loam, sandy loam, coarse sandy loam, loamy coarse sand, or the gravelly analogs of these textures
Content of rock fragments—0 to 34 percent

3C horizon:
Hue—10YR
Value—5
Chroma—3 or 4
Texture—coarse sand, sand, loamy coarse sand, or the gravelly analogs of these textures
Content of rock fragments—0 to 34 percent

Muskego Series

Taxonomic class: Coprogenous, euic, mesic Limnic Haplosaprists

Typical Profile

Muskego muck, drained, 0 to 1 percent slopes, in a cultivated field; 2,507 feet south and 275 feet west of the northeast corner of sec. 6, T. 36 N., R. 5 E.; Elkhart County, Indiana; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 36 minutes 7 seconds north and long. 85 degrees 59 minutes 5 seconds west, NAD 27; 584,605 easting and 4,606,086 northing, UTM zone 16, NAD 83.

Oap—0 to 9 inches; black (N 2.5/0) (broken face and rubbed) muck (sapric material); about 5 percent fiber, less than 1 percent rubbed; moderate fine granular structure; very friable; many very fine and fine roots; slightly acid; abrupt smooth boundary.

Oa1—9 to 21 inches; brown (7.5YR 4/4) (broken face) muck (sapric material), black (N 2.5/0) after exposure to air; about 5 percent fiber, less than 1 percent rubbed; moderate thin platy structure; very friable; common very fine and fine roots between peds; slightly acid; clear smooth boundary.
Oa2—21 to 27 inches; dark gray (10YR 4/1) (broken face) muck (sapric material), black (N 2.5/0) after exposure to air; about 15 percent fiber, 2 percent rubbed; weak thin platy structure; friable; common very fine and fine roots between peds; slightly acid; clear smooth boundary.
Lco1—27 to 35 inches; dark grayish brown (2.5Y 4/2) coprogenous material; about 5 percent fiber, 5 percent rubbed; massive; very friable; neutral; clear smooth boundary.
Lco2—35 to 54 inches; dark grayish brown (2.5Y 4/2) coprogenous material; massive; very friable; neutral; clear smooth boundary.
Lco3—54 to 70 inches; olive gray (5Y 4/2) coprogenous material, dark gray (5Y 4/1) after exposure to air; massive; very friable; neutral; clear smooth boundary.
Lco4—70 to 80 inches; dark gray (5Y 4/1) coprogenous material; massive; very friable; neutral.

Range in Characteristics

Thickness of the organic material: 16 to 50 inches

Oa horizon:
Hue—7.5YR, 10YR, or neutral
Value—2, 2.5, 3, or, less commonly, 4
Chroma—0, 1, or, less commonly, 0 to 4
Texture—muck (sapric material)

Lco horizon:
Hue—10YR to 5Y
Value—3 or 4
Chroma—1 or 2
Texture—coprogenous material

Ockley Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Profile

Ockley silt loam, on a slope of 1 percent, in a cultivated field; 195 feet north and 1,850 feet east of the southwest corner of sec. 18, T. 15 N., R. 11 E.; Rush County, Indiana; USGS Falmouth, Indiana, topographic quadrangle; lat. 39 degrees 44 minutes 40.4 seconds north and long. 85 degrees 20 minutes 44.2 seconds west, NAD 27; 641,750 easting and 4,400,720 northing, UTM zone 16, NAD 83 (fig. 35).

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and very fine roots; 2 percent gravel; slightly acid; abrupt smooth boundary.
BA—10 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; 2 percent gravel; slightly acid; clear wavy boundary.
Bt1—15 to 18 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; 6 percent gravel; slightly acid; clear wavy boundary.
2Bt2—18 to 30 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine and very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 4 percent gravel; moderately acid; clear wavy boundary.
2Bt3—30 to 37 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; common prominent dark reddish brown (5YR 3/3) clay films on faces of peds; 8 percent gravel; strongly acid; clear wavy boundary.
2Bt4—37 to 49 inches; dark reddish brown (5YR 3/3) gravelly sandy clay loam; weak medium subangular blocky structure; friable; common distinct dark reddish brown (5YR 3/3) clay bridgings between sand grains; 26 percent gravel; neutral; abrupt irregular boundary.
3C—49 to 80 inches; yellowish brown (10YR 5/4) stratified coarse sand and very gravelly coarse sand; single grain; loose; 50 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess or silty material: 0 to 20 inches
Depth to the base of the argillic horizon: 40 to 72 inches

Ap and BA horizons:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5

Chroma—4 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

2Bt horizon, upper part:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—clay loam, sandy clay loam, or loam
Content of rock fragments—2 to 10 percent

2Bt horizon, lower part:
Hue—5YR to 10YR
Value—3 or 4
Chroma—3 to 6
Texture—clay loam, sandy clay loam, sandy loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—10 to 45 percent

3C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified gravelly or very gravelly analogs of loamy coarse sand or coarse sand; strata of loamy sand, coarse sand, sand, or extremely gravelly sand
Content of rock fragments—30 to 70 percent

Pella Series

Taxonomic class: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Profile

Pella silty clay loam, on a nearly level slope, in a cultivated field; 350 feet west and 800 feet north of the southeast corner of sec. 25, T. 20 N., R. 8 E.; Delaware County, Indiana; USGS Gilman, Indiana, topographic quadrangle; lat. 40 degrees 9 minutes 5 seconds north and long. 85 degrees 33 minutes 30 seconds west, NAD 27; 622,792 easting and 4,445,562 northing, UTM zone 16, NAD 83.

Ap—0 to 11 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure parting to moderate fine granular; firm; common very fine roots; common very fine interstitial and tubular pores; neutral; clear smooth boundary.

A—11 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak medium subangular blocky structure; firm; common very fine roots; common very fine interstitial and tubular pores; neutral; clear smooth boundary.

Bg1—14 to 20 inches; dark gray (5Y 4/1) silty clay; weak medium prismatic structure parting to weak medium subangular blocky; firm; common very fine roots between peds; common very fine interstitial and tubular pores; common distinct black (10YR 2/1) organic coatings on faces of peds and in pores; common medium prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 4/6) masses in which iron has accumulated; few fine irregular dark reddish brown (5YR 3/2) masses in which iron and manganese oxide have accumulated; neutral; clear wavy boundary.

Bg2—20 to 29 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; common very fine roots between peds; common very fine interstitial and tubular pores; common dark grayish brown (2.5Y 4/2) pressure faces; few distinct very dark gray (10YR 3/1) organic coatings on faces of peds and in pores; many medium prominent yellowish brown (10YR 5/6) masses in which iron has accumulated; common fine irregular dark reddish brown (5YR 3/2) masses in which iron and manganese oxide have accumulated; neutral; abrupt wavy boundary.

2Bg3—29 to 34 inches; gray (5Y 5/1) silt loam; weak coarse subangular blocky structure; firm; few very fine roots between peds; few very fine interstitial and tubular pores; common medium prominent light olive brown (2.5Y 5/4) masses that have accumulated iron and are in the matrix; common fine irregular dark reddish brown (5YR 3/2) masses in which iron and manganese oxide have accumulated; few white (10YR 8/1) shells; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cg—34 to 60 inches; olive gray (5Y 5/2) silt loam; massive; friable; loam strata; many medium distinct olive brown (2.5Y 4/4) masses that have accumulated iron and are in the matrix; few white (10YR 8/1) shells; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: 16 to 40 inches
Depth to the base of the cambic horizon: 30 to 50 inches

Ap and A horizons:
Hue—10YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—silt loam or silty clay loam

Bg or Btg horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 or 2
Texture—clay loam, silty clay loam, or silty clay

2Bg or 2Btg horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1 to 8
Texture—clay loam, silt loam, loam, or silty clay loam; strata of sandy loam, loamy sand, or sand in some pedons
Content of rock fragments—0 to 7 percent

2Cg or 2C horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1 to 8
Texture—silty clay loam, silt loam, loam, clay loam, sandy loam, or the gravelly analogs of these textures; thin strata of sand or loamy sand in some pedons
Content of rock fragments—0 to 20 percent

Pewamo Series

Taxonomic class: Fine, mixed, active, mesic Typic Argiaquolls

Typical Profile

Pewamo silty clay loam, on a concave slope of less than 1 percent, in a cultivated field; 1,700 feet west and 200 feet south of the northeast corner of sec. 25, T. 22 N., R. 9 E.; Delaware County, Indiana; USGS Wheeling, Indiana, topographic quadrangle; lat. 40 degrees 19 minutes 51 seconds north and long. 85 degrees 26 minutes 40 seconds west, NAD 27; 632,143 easting and 4,465,644 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure parting to moderate fine and medium granular; friable; many fine roots; neutral; abrupt smooth boundary.

Btg1—10 to 22 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure; firm; common fine and very fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds and in root channels; common medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron and have diffuse boundaries; neutral; gradual smooth boundary.

Btg2—22 to 34 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate coarse prismatic structure; firm; common very fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron and have diffuse boundaries; neutral; clear wavy boundary.

2Btg3—34 to 47 inches; dark grayish brown (2.5Y 4/2) clay; moderate coarse prismatic structure; firm; few very fine roots; many distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and have diffuse boundaries; 2 percent gravel; neutral; gradual wavy boundary.

2Btg4—47 to 57 inches; dark grayish brown (2.5Y 4/2) clay; weak coarse prismatic structure; firm; common distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and have diffuse boundaries; 2 percent gravel; slightly alkaline; clear wavy boundary.

2Cg—57 to 80 inches; grayish brown (10YR 5/2) clay loam; massive; firm; many medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron and have diffuse boundaries; 2 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 17 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam
Content of rock fragments—0 to 10 percent

Btg and 2Btg horizons:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, clay, or silty clay
Content of rock fragments—0 to 10 percent

2Cg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2

Texture—clay loam or silty clay loam
Content of rock fragments—1 to 14 percent

Rawson Series

Taxonomic class: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Profile

Rawson loam, on a slope of 4 percent, in a cultivated field; 500 feet east and 730 feet north of the southwest corner of sec. 22, T. 33 N., R. 14 E.; DeKalb County, Indiana; USGS Saint Joe, Indiana, topographic quadrangle; lat. 41 degrees 17 minutes 59 seconds north and long. 84 degrees 54 minutes 12.5 seconds west, NAD 27; 675,527 easting and 4,574,156 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; dark brown (10YR 3/3) loam, pale brown (10YR 6/3) dry; weak coarse granular structure; friable; common fine roots; 1 percent gravel; moderately acid; abrupt smooth boundary.

Bt1—10 to 13 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; many distinct dark brown (10YR 3/3) organic coatings on faces of peds; 1 percent gravel; slightly acid; clear wavy boundary.

Bt2—13 to 20 inches; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 1 percent gravel; slightly acid; clear wavy boundary.

Bt3—20 to 28 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 13 percent gravel; slightly acid; clear wavy boundary.

Bt4—28 to 39 inches; dark yellowish brown (10YR 4/4) loam; moderate coarse subangular blocky structure; friable; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 3 percent gravel; neutral; clear wavy boundary.

2BCt—39 to 43 inches; brown (10YR 4/3) silty clay loam; weak coarse subangular blocky structure; firm; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common light gray (10YR 7/2) carbonate coatings on faces of peds; few medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 1 percent gravel; slightly effervescent; moderately alkaline; clear wavy boundary.

2Cd—43 to 80 inches; brown (10YR 4/3) clay loam; massive; very firm; common light gray (10YR 7/2) carbonate coatings along fractures; 2 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loamy outwash: 20 to 40 inches
Depth to the base of the argillic horizon: Commonly 24 to 40 inches but ranges from 20 to 45 inches
Depth to carbonates: 20 to 45 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—loam
Content of rock fragments—0 to 14 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, sandy clay loam, loam, fine sandy loam, sandy loam, or the gravelly analogs of these textures
Content of rock fragments—0 to 20 percent

2Bt or 2BCt horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay, clay loam, silty clay loam, or silty clay
Content of rock fragments—1 to 10 percent

2Cd horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or silty clay loam
Content of rock fragments—1 to 10 percent

Rensselaer Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Profile

Rensselaer loam, on a concave slope of less than 1 percent, in a cultivated field; 1,150 feet east and 380 feet north of the southwest corner of sec. 9, T. 33 N., R. 4 E.; Marshall County, Indiana; USGS Bourbon, Indiana, topographic quadrangle; lat. 41 degrees 19 minutes 7.5 seconds north and long. 86 degrees

4 minutes 23.2 seconds west, NAD 27; 577,576 easting and 4,574,562 northing, UTM zone 16, NAD 83.

Ap—0 to 11 inches; very dark gray (10YR 3/1) loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; common fine roots; neutral; clear smooth boundary.

A—11 to 15 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; friable; common fine roots; common fine faint brown (10YR 4/3) masses that have accumulated iron and are in the matrix; neutral; clear wavy boundary.

Btg1—15 to 26 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; few fine roots between peds; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish red (5YR 5/8) masses that have accumulated iron and are in the matrix; slightly acid; clear wavy boundary.

Btg2—26 to 38 inches; gray (10YR 6/1) clay loam; moderate medium subangular blocky structure; firm; few fine roots between peds; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; neutral; clear wavy boundary.

Btg3—38 to 42 inches; gray (10YR 5/1) loam; moderate medium subangular blocky structure; friable; few fine and very fine roots between peds; common distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron and are in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cg1—42 to 60 inches; gray (10YR 6/1) silt loam; massive; friable; thin strata of fine sand; few medium prominent brownish yellow (10YR 6/8) masses that have accumulated iron and are in the matrix; 10 percent fine gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

2Cg2—60 to 76 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; thin strata of loamy sand and sandy loam; massive; friable; common medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron and are in the matrix; 5 percent fine gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

3Cg3—76 to 80 inches; gray (10YR 5/1) loam; massive; friable; 5 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap and A horizons:
Hue—10YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—loam
Content of rock fragments—0 to 5 percent

Btg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, loam, or clay loam in the upper part and loam, sandy clay loam, clay loam, silt loam, or sandy loam in the lower part
Content of rock fragments—0 to 5 percent

2Cg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—stratified fine sand, very fine sand, loamy sand, loamy fine sand, sandy loam, loam, or silt loam
Content of rock fragments—0 to 10 percent

3Cg horizon, where present:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Ross Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Profile

Ross silt loam, in a level area, in a cultivated field; about 1,950 feet north of the intersection of U.S. Highway 50 and Township Road 30; Ross County, Ohio; USGS Morgantown, Ohio, topographic quadrangle; lat. 39 degrees 14 minutes 13 seconds north and long. 83 degrees 14 minutes 42 seconds west, NAD 27; 306,248 easting and 4,345,478 northing, UTM zone 17, NAD 83.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and fine granular structure; friable; many fine roots; few rock fragments; slightly alkaline; clear smooth boundary.

A1—8 to 20 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; friable; common fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few rock fragments; slightly alkaline; clear smooth boundary.

A2—20 to 29 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; friable; common fine roots; few rock fragments; slightly alkaline; clear wavy boundary.

Bw—29 to 40 inches; brown (10YR 4/3) loam; weak coarse subangular blocky structure; friable; few fine roots; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 10 percent rock fragments; moderately alkaline; clear smooth boundary.

C—40 to 80 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; very friable; strata of coarse sandy loam; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to carbonates: 24 to 45 inches
Thickness of the mollic epipedon: 24 to 30 inches
Depth to the base of the cambic horizon: 40 to 60 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam, loam, silty clay loam, clay loam, or sandy loam
Content of rock fragments—0 to 10 percent

C horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam, sandy loam, silt loam, or the gravelly analogs of these textures
Content of rock fragments—0 to 34 percent

Shoals Series

Taxonomic class: Fine-loamy, mixed, superactive, nonacid, mesic Fluventic Endoaquepts

Typical Profile

Shoals loam, on a slope of 1 percent, in a cultivated field; 1,320 feet west and 660 feet south of the northeast corner of sec. 12, T. 16 N., R. 9 E.; Henry County, Indiana; USGS Dunreith, Indiana, topographic quadrangle; lat. 39 degrees 51 minutes 33 seconds north and long. 85 degrees 28 minutes 15 seconds west, NAD 27; 630,802 easting and 4,413,251 northing, UTM zone 16, NAD 83.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, brown (10YR 5/3) dry; weak fine granular structure; friable; many fine roots; slightly alkaline; abrupt smooth boundary.

AB—8 to 13 inches; dark grayish brown (10YR 4/2) loam; moderate medium granular structure; friable; common fine roots; common fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common medium faint dark gray (10YR 4/1) iron depletions in the matrix; slightly alkaline; clear smooth boundary.

Bw—13 to 20 inches; brown (10YR 4/3) loam; weak fine and medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; many medium faint dark grayish brown (10YR 4/2) iron depletions in the matrix; moderately alkaline; clear smooth boundary.

Bg—20 to 30 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; slightly effervescent; moderately alkaline; clear smooth boundary.

Cg1—30 to 43 inches; grayish brown (10YR 5/2) loam; massive; friable; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common medium faint dark gray (10YR 4/1) iron depletions in the matrix; strongly effervescent; moderately alkaline; gradual smooth boundary.

Cg2—43 to 49 inches; gray (10YR 5/1) stratified loam, fine sandy loam, and loamy sand; massive; friable; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the

matrix; strongly effervescent; moderately alkaline; gradual smooth boundary.

Cg3—49 to 60 inches; gray (10YR 5/1) stratified silt loam, loam, fine sandy loam, and loamy sand; massive; friable; common medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron and are in the matrix; many medium faint dark gray (10YR 4/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: 20 to 60 inches
Depth to carbonates: 20 to 60 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 3 percent

AB, Bg, and Bw horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, silt loam, fine sandy loam, sandy loam, clay loam, sandy clay loam, or silty clay loam
Content of rock fragments—0 to 3 percent

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, silt loam, fine sandy loam, or sandy loam; thin strata of loamy sand or sand
Content of rock fragments—0 to 14 percent

Sloan Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Profile

Sloan silty clay loam, on a slope of less than 1 percent, in a cultivated field; 2,600 feet south and 1,980 feet west of the intersection of State Route 49 and Siegrist-Jutte Road; SW1/4NE1/4 sec. 6, T. 7 S., R. 1 E.; Mercer County, Ohio; USGS Fort Recovery, Indiana-Ohio, topographic quadrangle; lat. 40 degrees 27 minutes 28.8 seconds north and long. 84 degrees 47 minutes 28 seconds west, NAD 27; 687,293 easting and 4,480,942 northing, UTM zone 16, NAD 83.

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam, very dark grayish brown (10YR 3/2) rubbed and gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; friable; many fine roots; neutral; abrupt smooth boundary.

A—9 to 15 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate medium angular blocky structure; friable; many fine roots; few medium distinct dark yellowish brown (10YR 3/4) masses that have accumulated iron and are throughout the horizon; neutral; gradual wavy boundary.

Bg1—15 to 21 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron and are throughout the horizon; few black (10YR 2/1) manganese concretions throughout; neutral; gradual wavy boundary.

Bg2—21 to 34 inches; gray (10YR 5/1) and dark gray (10YR 4/1) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; many medium prominent brown (7.5YR 4/4) and few fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are throughout the horizon; few black (10YR 2/1) manganese concretions throughout; neutral; clear smooth boundary.

BCg—34 to 45 inches; gray (10YR 5/1) clay loam; massive; friable; many coarse prominent strong brown (7.5YR 5/6) masses that have accumulated iron and are throughout the horizon; slightly alkaline; gradual wavy boundary.

Cg—45 to 60 inches; gray (10YR 5/1) stratified loam, silt loam, silty clay loam, and sandy loam; massive; friable; many coarse distinct yellowish brown (10YR 5/4) and prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are throughout the horizon; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the cambic horizon: 20 to 60 inches
Depth to carbonates: 22 to more than 80 inches

Ap and A horizons:
Hue—10YR, 2.5Y, or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR to 5Y or neutral
Value—4 or 5
Chroma—0 to 2
Texture—silty clay loam, clay loam, silt loam, or loam
Content of rock fragments—0 to 5 percent

BCg or BC horizon, where present:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 4
Texture—silty clay loam, clay loam, silt loam, loam, or the gravelly analogs of these textures
Content of rock fragments—commonly 0 to 14 percent but ranges from 0 to 34 percent

Cg or 2Cg horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam, clay loam, loam, silt loam, sandy loam, or the gravelly analogs of these textures
Content of rock fragments—commonly 0 to 20 percent but ranges from 0 to 34 percent

Southwest Series

Taxonomic class: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Profile

Southwest silt loam, on a concave slope of 1 percent, in a cultivated field; 129 feet west and 1,167 feet south of the northeast corner of sec. 8, T. 36 N., R. 5 E.; Elkhart County, Indiana; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 28 seconds north and long. 85 degrees 57 minutes 53 seconds west, NAD 27; 586,286 easting and 4,604,903 northing, UTM zone 16, NAD 83 (fig. 36).

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots throughout; moderately acid; clear wavy boundary.

Bg1—10 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; many fine and medium interstitial and tubular pores; common medium faint brown (10YR 4/3) masses that have accumulated iron and are in the matrix; moderately acid; clear wavy boundary.

Bg2—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium interstitial and tubular pores; common medium faint brown (10YR 4/3) masses that have accumulated iron and are in the matrix; moderately acid; clear wavy boundary.

2Ab—23 to 34 inches; black (10YR 2/1) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; slightly acid; clear wavy boundary.

2Bgb—34 to 45 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; many medium distinct brown (10YR 5/3) and common fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron and are in the matrix; neutral; clear wavy boundary.

3Ab1—45 to 55 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron and are in the matrix; neutral; gradual wavy boundary.

3Ab2—55 to 75 inches; very dark grayish brown (10YR 3/2) silt loam; weak thick platy structure; friable; common medium prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron and are in the matrix; neutral; gradual wavy boundary.

3Cg—75 to 80 inches; dark gray (5Y 4/1) silt loam; massive; friable; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to carbonates: 40 to more than 80 inches
Thickness of the overwash and depth to a buried soil: Typically 20 to 40 inches but ranges from 10 to 40 inches
Content of rock fragments: 0 to 5 percent below the overwash

Ap horizon:
Hue—10YR
Value—4
Chroma—2 or 3
Texture—silt loam

Bg horizon:
Hue—10YR
Value—4 or 5
Chroma—2
Texture—silt loam or silty clay loam

2Ab horizon:
Hue—10YR

Value—2 or 3
Chroma—1 or 2
Texture—silt loam, silty clay loam, or loam

2Bgb horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam, silt loam, loam, or clay loam

3Ab horizon, where present:
Hue—10YR
Value—3
Chroma—1 or 2
Texture—silt loam, silty clay loam, clay loam, or loam

3C or 3Cg horizon, where present:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 to 4
Texture—silt loam, loam, or clay loam

Strawn Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Profile

Strawn loam, on a slope of 18 percent, in a pasture; 194 feet north and 96 feet west of the southeast corner of sec. 17, T. 22 N., R. 2 W.; Tazewell County, Illinois; USGS Armington, Illinois, topographic quadrangle; lat. 40 degrees 21 minutes 28 seconds north and long. 89 degrees 20 minutes 56 seconds west, NAD 27; 300,533 easting and 4,470,119 northing, UTM zone 16, NAD 83.

Ap—0 to 7 inches; brown (10YR 4/3 and 5/3) loam, pale brown (10YR 6/3) and very pale brown (10YR 7/3) dry; weak fine and medium granular structure; friable; common fine roots; few pebbles; neutral; abrupt smooth boundary.

Bt1—7 to 11 inches; brown (10YR 4/3) clay loam; moderate fine subangular blocky structure; firm; few fine roots; many faint brown (10YR 4/3) clay films on faces of peds; few pebbles; neutral; clear smooth boundary.

Bt2—11 to 22 inches; brown (10YR 4/3) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many faint brown (10YR 4/3) clay films on faces of peds; few pebbles; neutral; clear smooth boundary.

C—22 to 60 inches; brown (10YR 5/3) loam; massive; firm; few fine prominent strong brown (7.5YR 5/8) masses that have accumulated iron and are in the matrix; few pebbles; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 16 to 24 inches
Depth to carbonates: 14 to 24 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4 (Where value is 3 and chroma is 2 or 3, value is 6 or more when the soils are dry.)
Texture—loam or silt loam
Content of rock fragments—0 to 7 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—clay loam, loam, or silty clay loam
Content of rock fragments—3 to 13 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—2 to 6
Texture—loam, silt loam, or fine sandy loam
Content of rock fragments—3 to 13 percent

Treaty Series

Taxonomic class: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Profile

Treaty silty clay loam, on a linear slope of less than 1 percent, in a cultivated field; 700 feet east and 1,950 feet north of the southwest corner of sec. 35, T. 20 N., R. 5 W.; Montgomery County, Indiana; USGS Linden, Indiana, topographic quadrangle; lat. 40 degrees 7 minutes 54.8 seconds north and long. 86 degrees 57 minutes 31 seconds west, NAD 27; 503,526 easting and 4,442,399 northing, UTM zone 16, NAD 83.

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

A—10 to 14 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure parting to weak fine granular; firm; slightly acid; clear smooth boundary.

Btg1—14 to 22 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; many distinct olive gray (5Y 5/2) clay films on faces of peds and as linings of pores; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses that have accumulated iron and are in the matrix; neutral; clear wavy boundary.

Btg2—22 to 36 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine pores; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds and as linings of pores; few fine distinct light olive brown (2.5Y 5/4) masses that have accumulated iron and are in the matrix; few black (10YR 2/1) manganese oxide concretions; neutral; clear wavy boundary.

2Btg3—36 to 59 inches; gray (10YR 5/1) loam; weak medium subangular blocky structure; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron and are in the matrix; 5 percent gravel; neutral; clear wavy boundary.

2C—59 to 70 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct gray (10YR 5/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: Commonly 10 to 14 inches but ranges from 10 to 18 inches
Thickness of the loess: 24 to 40 inches
Depth to the base of the argillic horizon: Commonly 45 to 60 inches but ranges from 40 to 65 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam

Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture—silty clay loam or silt loam

2Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—2 to 10 percent

2BCtg or 2BCt horizon, where present:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—2 to 10 percent

2C horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—2 to 10 percent

Wapahani Series

Taxonomic class: Loamy, mixed, active, mesic, shallow Oxyaquic Hapludalfs

Typical Profile

Wapahani clay loam, on a slope of 10 percent, in a cultivated field; 2,900 feet south and 2,050 feet west of the northeast corner of sec. 1, T. 19 N., R. 8 E.; Delaware County, Indiana; USGS Gilman, Indiana, topographic quadrangle; lat. 40 degrees 7 minutes 36 seconds north and long. 85 degrees 33 minutes 52 seconds west, NAD 27; 622,316 easting and 4,442,809 northing, UTM zone 16, NAD 83.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) clay loam, light yellowish brown (10YR 6/4) dry; weak medium subangular blocky structure; firm; common fine roots; common fine tubular pores; 3 percent gravel; neutral; clear smooth boundary.

Bt—5 to 16 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; many fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are in the matrix; 5 percent gravel; neutral; clear smooth boundary.

BCt—16 to 20 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; firm; few very fine and fine roots; few very fine and fine tubular pores; few distinct brown (10YR 4/3) clay films on faces of peds; many fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are in the matrix; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix;

7 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

Cd—20 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; many fine irregular very dark gray (10YR 3/1) masses that have accumulated iron and manganese oxide and are in the matrix; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 8 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 10 to 20 inches
Depth to carbonates: 8 to 18 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam or loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam or loam
Content of rock fragments—0 to 10 percent

BCt or CB horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Cd horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Wawaka Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Profile

Wawaka silt loam, on a slope of 1 percent, in a cultivated field; 275 feet west and 300 feet north of the southeast corner of sec. 20, T. 19 N., R. 9 E.; Delaware County, Indiana; USGS Middletown, Indiana, topographic quadrangle; lat. 40 degrees 4 minutes 43 seconds north and long. 85 degrees 31 minutes 12 seconds west, NAD 27; 626,192 easting and 4,437,538 northing, UTM zone 16, NAD 83 (fig. 37).

Ap1—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine and medium granular structure; friable; many very fine and fine roots; 2 percent gravel; slightly acid; abrupt smooth boundary.

Ap2—5 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak thick platy structure; friable; common very fine and fine roots; 3 percent gravel; moderately acid; abrupt smooth boundary.

2Bt1—9 to 15 inches; dark yellowish brown (10YR 3/4) clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots; many very fine and fine interstitial and tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds and in pores; 5 percent gravel; moderately acid; clear smooth boundary.

2Bt2—15 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; strong fine and medium subangular blocky structure; firm; common very fine and fine roots; many very fine and fine interstitial and tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds and in pores; 3 percent gravel; slightly acid; clear smooth boundary.

2Bt3—23 to 30 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; common very fine and fine roots; many very fine and fine interstitial and tubular pores; many prominent dark brown (10YR 3/3) clay films on faces of peds and in pores; 6 percent gravel; slightly acid; abrupt wavy boundary.

2Bt4—30 to 35 inches; dark yellowish brown (10YR 4/4) clay loam; weak coarse subangular blocky structure; firm; common very fine and fine roots; common very fine and fine interstitial and tubular pores; many prominent dark brown (7.5YR 3/2) clay films on faces of peds; 8 percent gravel; moderately alkaline; abrupt wavy boundary.

2BCt—35 to 39 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; firm; common very fine and fine roots; common very fine and fine and few medium tubular pores; common prominent dark brown (7.5YR 3/2) clay films on faces of peds; 11 percent gravel (mostly dolomite); slightly effervescent; moderately alkaline; clear wavy boundary.

2C/Bt1—39 to 52 inches; 80 percent yellowish brown (10YR 5/4) gravelly loam (C); weak medium and coarse subangular blocky structure; firm; few very fine and fine roots; few very fine and fine interstitial pores; few distinct dark brown (10YR 3/3) clay films on faces of peds; 20 percent gravel (mostly dolomite); 3 percent dolomite cobbles; strongly effervescent; 20 percent dark yellowish brown (10YR 4/4) clay loam (Bt) in vertical tongues that are 4 to 5 inches wide at the top of the horizon and taper to less than 1 inch at the bottom; weak fine and medium subangular blocky structure; firm; few very fine and fine roots; common very fine and fine tubular pores; many prominent dark brown (7.5YR 3/2) clay films on faces of peds; 8 percent gravel; very slightly effervescent; moderately alkaline; gradual smooth boundary.

2C/Bt2—52 to 84 inches; 95 percent yellowish brown (10YR 5/4) gravelly loam (C); weak very coarse prismatic structure parting to weak thick and very thick platy parting to weak fine and medium angular blocky; firm; few fine vesicular pores; few prominent brown (10YR 4/3) clay films on vertical faces of peds; 20 percent gravel (mostly dolomite); 3 percent dolomite cobbles; strongly effervescent; 5 percent brown (10YR 4/3) clay loam (Bt) in vertical tongues that are about 1 inch wide; weak fine and medium subangular blocky structure; firm; few very fine and fine roots; common very fine and fine tubular pores; many prominent dark brown (7.5YR 3/2) clay films on faces of peds; 8 percent gravel; very slightly effervescent; moderately alkaline; abrupt smooth boundary.

3Bt—84 to 96 inches; dark brown (7.5YR 3/2) very gravelly coarse sandy loam; weak very fine and fine subangular blocky structure; friable; strata of gravelly sandy clay loam; few very fine and fine roots; few very fine and fine interstitial and tubular pores; many distinct dark brown (7.5YR 3/2) clay bridgings between sand grains; 40 percent gravel; 3 percent dolomite cobbles; very slightly effervescent; moderately alkaline; clear wavy boundary.

3C—96 to 116 inches; yellowish brown (10YR 5/4) very gravelly coarse sand; single grain; loose; strata of sand; 50 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 20 inches
Depth to carbonates: 30 to 60 inches
Depth to the base of the argillic horizon: 30 to 60 inches
Depth to the base of soil development: More than 80 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 3 percent

2Bt horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or clay loam
Content of rock fragments—0 to 10 percent

2BCt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam or gravelly loam or, less commonly, clay loam in vertical tongues
Content of rock fragments—5 to 20 percent

2C/Bt horizon:
Hue—10YR in the C part; 7.5YR or 10YR in the Bt part
Value—5 in the C part; 3 to 5 in the Bt part
Chroma—3 or 4
Texture—gravelly loam or loam in the C part; clay loam in the Bt part
Content of rock fragments—8 to 20 percent

3Bt or 3BCt horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—sandy clay loam, sandy loam, coarse sandy loam, or the gravelly or very gravelly analogs of these textures
Content of rock fragments—10 to 55 percent

3C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—fine sand, sand, coarse sand, loamy fine sand, loamy coarse sand, or the gravelly to extremely gravelly analogs of these textures
Content of rock fragments—averages 40 to 65 percent but ranges to 0 percent in individual strata

Williamstown Series

Taxonomic class: Fine-loamy, mixed, active, mesic Aquic Hapludalfs

Typical Profile

Williamstown silt loam, on a convex slope of 4 percent, in a cultivated field; 1,030 feet west and 2,080 feet north of the southeast corner of sec. 23, T. 9 N., R. 8 E.; Decatur County, Indiana; USGS Westport, Indiana, topographic quadrangle; lat. 39 degrees 12 minutes 36.9 seconds north and long. 85 degrees 35 minutes 52.7 seconds west, NAD 27; 621,048 easting and 4,341,051 northing, UTM zone 16, NAD 83.

Ap—0 to 9 inches; 90 percent brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; 10 percent yellowish brown (10YR 5/4) clay loam from the subsoil; moderate medium granular structure; friable; strongly acid; abrupt smooth boundary.

2Bt1—9 to 18 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 1 percent gravel; very strongly acid; clear wavy boundary.

2Bt2—18 to 33 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) iron and manganese oxide concretions; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent gravel; neutral; clear wavy boundary.

2BCt—33 to 37 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 1 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cd—37 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; common fine distinct gray (10YR 6/l) iron depletions in the matrix; 1 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 22 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt or 2Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or clay loam
Content of rock fragments—0 to 10 percent

BCt or 2BCt horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Cd or 2Cd horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Content of rock fragments—1 to 10 percent

Formation of the Soils

This section explains the major factors of soil formation that affected the soils in Delaware County and describes the processes of soil formation.

Factors of Soil Formation

Soils form through processes acting upon deposits of plants and geologic materials. The characteristics of a soil at any given point are determined by 1) the physical and mineralogical composition of the parent material, 2) the climate under which the soil formed, 3) the plant and animal life on and in the soil, 4) the topography, or general configuration of the land's surface, and 5) the length of time the soil forming factors have acted upon the parent material (Jenny, 1941).

Parent material greatly affects the development of the soil. Climate and plant and animal life are the active factors of soil formation. They act upon the parent material through the weathering process and slowly change it into a natural body that has genetically related horizons. Topography conditions the effects of climate and plant and animal life. Finally, time is needed for the transformation of the parent material into a soil exhibiting horizonation.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four.

Parent Material and Geology

Parent material is the unconsolidated geologic material in which a soil forms. It determines the chemical and mineralogical composition of the soil, particularly in terms of texture and natural fertility. The dominant parent materials in Delaware County are glacial till and glacial outwash. Loess, alluvium, lacustrine deposits, and organic deposits are parent materials of lesser extent.

Glacial till is material laid down directly by glaciers with a minimum of water action. It consists of particles of different sizes and shapes mixed together. Many rock fragments in glacial till are somewhat rounded, have flat surfaces, and have distinct edges and corners. This shape indicates that the fragments have not been subjected to intense washing by water. The glacial till in Delaware County was deposited during the Wisconsinan Stage of the Pleistocene epoch.

The soils that formed mostly in glacial till in Delaware County can be divided into two groups. The soils in the southern third of the county formed in till that dominantly has a texture of loam. The major soils in this part of the county are Crosby, Miami, Miamian, Treaty, and Williamstown soils. The soils in the northern two-thirds of the county formed in till that dominantly has a texture of clay loam or silty clay loam. The major soils in this part of the county are Blount, Glynwood, Morley, and Pewamo soils.

Outwash includes all sediments deposited by running water from melting glaciers. It normally consists of stratified layers of gravel, sand, or loamy sediments. Most rock fragments in outwash are well rounded, have worn corners, and do not have distinct edges. This shape indicates that the fragments have been subjected to intense washing by moving water. The coarseness of the outwash is directly related to the velocity of the running water. The outwash generally becomes finer grained with increasing distance from the melting glacier. Outwash terraces, kames, and eskers are landforms that are generally closely associated with the source of the meltwater and are underlain with coarser sediments. Casco, Eldean, Fox, and Muncie soils occur on these landforms in Delaware County (fig. 38). Outwash plains and glacial drainage channels are generally located farther from the source of the meltwater and are underlain by more-loamy sediments. Belmore, Digby, Haney, Martinsville, and Millgrove soils occur on these landforms in Delaware County.

The White River Valley and the Wabash River Valley received tremendous amounts of meltwater from glaciers to the north. The glacial meltwater carried large amounts of sediment, part of which was deposited in the enlarged flood plains of the river valleys. During the low-water seasons, winter and spring, predominantly westerly winds removed silt

Figure 38.—Tree planting and a hayfield, both in an area of Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded, on an esker.

from the flood plains and transported it downwind onto the adjacent uplands. This windblown material is called loess. It accumulated over extended periods and is as much as two feet thick in the stable locations.

Lacustrine material was deposited from still, or ponded, glacial meltwater. The coarser fragments dropped out of the moving meltwater as outwash, and only the finer particles, such as very fine sand, silt, and clay, remained to settle out in still water. The lacustrine deposits in Delaware County are dominantly silty or clayey but have thin lenses of sand. The deposits are mainly in potholes on till plains and outwash plains. Milford soils formed in lacustrine deposits.

The flood plains in the valleys of Delaware County formed from water-laid deposits of alluvium. These sediments range from sandy to clayey in texture and were deposited mainly during periods of stream overflow. During times of high water, sand and silt settle quickly and accumulate near the river. Clay remains in suspension longer and precipitates more slowly. Many old back-water lakes, or backswamps, are filled with clayey alluvial sediments. The Bellcreek soils formed in such clayey alluvium. On the flood plains along the White and Mississinewa Rivers, the alluvium is more varied. In areas close to the stream channels, the alluvium is sandy or loamy. Lash and Ross soils are examples of soils that formed in sandy or loamy alluvium. Farther from the stream channels, the alluvium is finer-textured and is dominantly loamy. The flood plains along the smaller creeks in the county also generally formed in loamy alluvium. Shoals and Sloan soils are the dominant soils in these areas. The profile of soils that formed in alluvial sediments generally becomes coarser and exhibits more stratification with depth.

Organic deposits consist of partially decomposed plant remains. After the glaciers withdrew from the area, water was left standing in lakes and in depressions on outwash plains and till plains. Grasses and sedges growing in these shallow lakes died and fell to the bottom. Because of the wetness of these areas, the plant remains did not decompose quickly. Later, white cedar and other water-tolerant trees grew in the areas. As these trees died, their residue became part of the organic accumulation. The plant remains subsequently decomposed. The lakes eventually filled with organic material and developed into areas of muck. Houghton soils formed in areas in which the muck is more than 51 inches thick.

Deposits of coprogenous material underlie the organic deposits in some depressions. Coprogenous material formed during an open-water stage of bog development. Muskego soils formed in herbaceous organic material overlying coprogenous material.

Climate

Climate is an important factor affecting the formation of soils. It determines the kind of plant and animal life on and in the soil. It also determines the

amount of water available for weathering minerals and for transporting soil materials. Climate, through its influence on soil temperature, determines the rates of the chemical reactions that occur in the soil. Climate also affects the amount of organic matter that can accumulate.

Although climatic forces act upon rocks to form the parent material, living organisms are responsible for the development of many of the more important soil characteristics. If not for the changes brought about by plants and animals, most of the soils would consist merely of residual or transported materials derived from weathered rock. Some soils, however, might form definite layers through the addition of alluvial material by differential weathering or leaching.

If acting alone on the parent material, climate is largely destructive. It washes the soluble materials out of the soils. If combined with plants and animal activity, climatic processes are constructive. A reversible cycle is established between intake and outgo of plant nutrients. Plants draw up nutrients that were washed into the lower part of the soil profile; then when the plants die, the surface soil is renewed by the nutrients that were drawn up.

The climate in Delaware County is temperate and humid. It is presumably similar to the climate that existed when the soils formed. Summers are hot and humid, and winters are cold. Precipitation is nearly evenly distributed throughout the year but is slightly heavier in the spring and early summer than in the fall. Heavy rainfall has leached plant nutrients from the surface layer of the soils and has prevented the accumulation of free calcium carbonates. Climate is nearly uniform throughout the county. Although the effects of climate are modified locally by topography and vegetation, the differences among the soils cannot be attributed to differences in climate alone.

Heavy, untimely rains are harmful when they fall on soils that have been exposed by farming operations. Early spring rains when the soil is partially frozen can cause extensive erosion. The partial freezing restricts water intake, increasing the amount of runoff.

For more detailed information on the climate of the county, see the section “General Nature of the Survey Area.” Also, tables 1, 2, and 3 have data on temperature and precipitation, freeze dates in spring and fall, and growing season.

Plant and Animal Life

Plants have been the principal living organisms affecting the soils in Delaware County. Other important agents of soil formation include microorganisms, earthworms, insects, large burrowing animals that live in or on the soil, and human activities. The main contribution of plant and animal life is the addition of organic matter and nutrients to the soil. The organic matter and nutrients in turn affect the structure and porosity of the soil.

The kind of organic material on and in the soil depends on the kinds of plants that have grown on the soil over the years. The remains of these plants accumulate in or on the surface layer, decay, and transform into humus. The roots of the plants form channels for the downward movement of water through the soil and add organic matter as they decay. Burrowing animals help to incorporate the organic matter so that it can be used by growing plants.

Soil structure is altered by the growth of the roots of higher plants, which break up aggregates. Microflora (bacteria, fungi, and actinomycetes) are the primary agents for the decomposition of plant roots and surface residue, such as fallen leaves, dead plants, dead animals, and animal wastes. This decomposition involves the breakdown and conversion of raw organic matter into complex organic compounds and the production of humus (Brady, 1974).

Humus is resistant to further microbial change and significantly influences many soil properties. Humus-rich soils have a dark brown or black color, a strong granular structure, and enhanced natural fertility. Humus retains plant nutrients, such as nitrogen, phosphorus, and sulfur, and has a high available water capacity (Brady, 1974).

Other organisms involved in soil formation include microfauna, such as nematodes and protozoa, and macrofauna, such as centipedes, earthworms, insects, and, to a lesser degree, rodents. Microfauna feed directly on microflora and parasitically on higher plants; thus, microfauna affect the degree and complexity of vegetative decomposition. Macrofauna contribute to organic matter conversions in many ways, including physically breaking up plant residues into smaller components and thereby accelerating the production of humus (Brady, 1974).

Earthworms are particularly important to soil formation. In addition to mixing the soil, earthworms enhance soil aeration and percolation (Brady, 1974; Buol and others, 1997).

Most of the soils in Delaware County formed under hardwood forests dominated by oak and hickory on the drier sites and by beech and maple on the wetter sites. These forests contributed organic matter to the soil mainly by leaf litter. Their root systems are less fibrous than those of grasses and generally are not densely concentrated near the surface. Soils that formed under forest vegetation characteristically have a thinner, lighter-colored surface layer and a leached,

lighter-colored subsurface layer than those of soils that formed under prairie grasses.

In areas of forest soils, most of the organic matter is concentrated at the surface where a litter of fallen leaves and other debris is continually decomposing and being replenished. This thin outer layer produces strong natural acids, which, when percolated downward in the soil, break down minerals and organic matter. This process accelerates leaching in the subsurface, lowering the natural fertility in that zone. Clays tend to accumulate in a lower layer known as an argillic horizon (Brady, 1974; Buol and others, 1997). Examples of soils that formed under forest vegetation and that have an argillic horizon include Blount, Crosby, Fox, and Miami soils.

Human activities, such as clearing the forests and plowing the soils, have greatly altered the surface layer and the soil environment. Humans have mixed the soil layers, moved the soil, added fertilizer and lime, and introduced new plants. The effect of these activities is an alteration of the biological activity in the soil. Human activities commonly reduce the content of organic matter through soil erosion and crop removal. In places, accelerated erosion has removed most of the original surface layer and exposed the undesirable subsoil layers. Where the topsoil is removed, the remaining soil has poor tilth and is difficult to work.

Topography

Topography, or relief, has had a marked influence on the soils in the county through its effect on internal drainage, erosion, plant cover, and soil temperature. Relief modifies the effects of other soil forming processes. For example, soil development tends to be greater in level areas than in sloping areas. In Delaware County, most slopes range from 0 to 50 percent. Internal soil drainage ranges from somewhat excessively drained on sloping shoulders and backslopes to very poorly drained in nearly level depressions.

Topography determines, to a large extent, how much water infiltrates into or runs off of a soil. In sloping areas, water tends to run down the hill rather than to percolate into the soil. This runoff inhibits soil forming processes and accelerates erosion. Soils on backslopes, therefore, are commonly shallower than soils on summits. Runoff is greatest and infiltration is lowest on the steepest slopes. In general, runoff decreases and infiltration increases as the slope gradient decreases. In low, depressional areas, water can be temporarily ponded because of runoff from adjacent, higher slopes.

Topography influences internal drainage by affecting aeration of the soil. Aeration determines the color of the subsoil. Water and air move freely through soils that are well drained and slowly through soils that are poorly drained. In soils that are well aerated and above the water table, the iron and aluminum compounds that give most soils their color are brightly colored and oxidized. In poorly aerated soils, such as those in low or depressional areas, the subsoil is dull gray and mottled. In the more sloping, well drained soils, such as Belmore soils, the water table is below the subsoil and some of the rainfall runs off the soil instead of infiltrating into the soil. The soil pores contain less water and much more air than the pores of the poorly aerated soils. The iron and aluminum compounds are well oxidized, giving the subsoil a brown, bright color. In the nearly level, very poorly drained Milford soils, the water table is at or near the surface during the spring and recedes through the growing season. The Milford soils are poorly aerated and have a dull gray subsoil.

Topography greatly influences erosion. Although some erosion occurs on almost all sloping soils, erosion generally becomes more of a hazard as slope and runoff increase.

Time

Time influences the degree of development of a soil profile. Horizon differentiation is generally a very slow process, and the appearance of a soil profile is affected by how long the parent material has been in place.

A great amount of time is required for distinct soil profiles to develop. The length of time required depends mainly on the kind and nature of the parent materials and the topography. Plant and animal life and climate have comparatively less influence on the rate of soil development. With the exception of soils formed in recent alluvium and organic deposits, the soils in Delaware County have been forming long enough that the interaction of the soil forming factors is evident.

Soils that formed in recent sediments on flood plains have weak horizon development. The surface layer of these soils may show a slight increase in organic matter content, and the subsoil may have a weak structure. Examples include Eel, Gessie, and Shoals soils.

After a relatively long time, weathering processes cause the translocation of fine grained material from the surface layer to the subsoil. This translocation appears to cause the structure and color of the subsoil to change over time and gives rise to distinct layers that are called horizons. Distinctly expressed soil horizons indicate a strongly developed soil profile.

Examples of soils that have distinct profile characteristics include Blount, Crosby, Miami, and Morley soils.

Processes of Soil Formation

Several processes have been involved in the formation of the soils in Delaware County. These processes are the accumulation of organic matter; the dissolution, transfer, and removal of calcium carbonates and bases; the liberation and translocation of silicate clay minerals; and the reduction and transfer of iron. In most of the soils, more than one of these processes have helped to differentiate soil horizons.

Some organic matter has accumulated in the surface layer of all of the soils in the county. The content of organic matter, however, is low or moderately low in most of the soils.

Carbonates and bases have been leached from the upper horizons of most of the soils in the county. Leaching probably preceded the translocation of silicate clay minerals. Almost all of the carbonates and some of the bases have been leached from the A and B horizons of the well drained soils. Even in the wettest soils, some leaching is indicated by an absence of carbonates and by an acid soil reaction. Leaching in wet soils is slow because of a seasonal high water table or slow movement of water through the profile.

Clay accumulates in pores and other voids and forms films on the surfaces along which water moves. The leaching of bases and the translocation of silicate clays are among the more important processes affecting horizon differentiation in the soils. Crosby soils are an example of soils in which translocated silicate clays have accumulated in the Bt horizon in the form of clay films. Gleying, or the reduction and transfer of iron, has occurred in all of the very poorly drained to somewhat poorly drained soils in the county. In these naturally wet soils, gleying has had a significant effect on horizon differentiation. A gray subsoil indicates the reduction of iron oxides. This reduction is commonly accompanied by the transfer of some iron from the upper horizons to the lower horizons or completely out of the profile. Redoximorphic concentrations in some horizons indicate the segregation of iron.

References

American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th edition, 2 volumes.

American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487–00.

Brady, N.S. 1974. The nature and property of soils. 8th edition.

Buol, S.W., F.D. Hole, R.J. Southard, and R.J. McCracken. 1997. Soil genesis and classification. 4th edition.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS–79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

Huffman, Kelso K. 1972. Soil survey of Delaware County, Indiana. U.S. Department of Agriculture, Soil Conservation Service.

Hurst, Lewis A., and E.J. Grimes. 1915. Soil survey of Delaware County, Indiana. U.S. Department of Agriculture, Bureau of Soils.

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 4.0, 1998. Field indicators of hydric soils in the United States.

Jenny, Hans. 1941. Factors of soil formation.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Preston, Greg, and Wilson, Steve. 2003. Indiana agricultural statistics 2002–2003. Indiana Agricultural Statistics Service, Purdue University.

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, editors. 2002. Field book for describing and sampling soils. Version 2.0. United States Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2003. Keys to soil taxonomy. 9th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

State of Indiana, Governor's Water Resource Study Commission. 1980. The Indiana water resource. p. 508.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y–87–1, Vicksburg, MS.

United States Department of Agriculture, Agricultural Research Service. 1996. Predicting soil erosion by water: A guide to conservation planning with the Revised Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture Handbook 703.

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

United States Department of Agriculture, Soil Conservation Service. 1981. Land resource regions and major land resource areas of the United States. U.S. Department of Agriculture Handbook 296.

United States Department of Commerce, Bureau of the Census. 1999. 1997 census of agriculture, volume 1, geographic area series, part 14, chapter 2, Indiana state and county data. AC97S–3r.

United States Department of Commerce, Bureau of the Census. 2000. 2000 Census of population and housing. CPH–L–81, table 1.

Wayne, William J. 1965. The Crawfordsville and Knightstown Moraines in Indiana. Indiana Department of Conservation, Geological Survey Report of Progress 28.

Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts wet soil is exposed.

Board foot. A unit of measurement represented by a board 1 foot wide, 1 foot long, and 1 inch thick.

Bog. Waterlogged, spongy ground, consisting primarily of mosses, containing acidic, decaying vegetation (such as sphagnum, sedges, and heaths) that develops into peat.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cambic horizon. A subsoil horizon characterized by the alteration or removal of mineral material as indicated by mottling or gray colors, stronger chromas or redder hues than in underlying horizons, or the removal of carbonates.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

COLE (coefficient of linear extensibility) . See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and

practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the surface after planting in order to reduce the hazard of water erosion; in areas where wind erosion is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or its equivalent during the critical erosion period.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression. Any relatively sunken part of the Earth’s surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage. An open depression has a natural outlet for surface drainage.

Depth, soil. The thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate or high water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields

of most field crops are affected. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted under natural conditions. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poor drainage is caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except for rice) under natural conditions.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. Relatively small, linear depressions that, at some time, move concentrated water and either lack a defined channel or have a small, defined channel.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

End moraine. A ridge-like accumulation that is being or was produced at the outer margin of an actively flowing glacier at any given time.

Eolian deposits. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above a zone in which the soil moisture status is wet at all times.

Episaturation. A type of saturation indicating a perched zone in which the soil moisture status is wet in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic).—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Esker. A long, narrow, sinuous, steep-sided ridge composed of irregularly stratified sand and gravel that were deposited by a subsurface stream flowing between ice walls or through ice tunnels of a retreating glacier and that were left behind when the ice melted. Eskers range from less than 1 mile to more than 100 miles in length and from 10 to 100 feet in height.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily

identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is generally a constructional landform consisting of sediment deposited during overflow and lateral migration of the stream.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphology. The science that treats the general configuration of the earth's surface; specifically the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures, and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of underlying material below the top of where the soil moisture status is wet.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Herbaceous peat. An accumulation of organic material, decomposed to some degree, that is predominantly the remains of sedges, reeds, cattails, and other herbaceous plants.

High-chroma zones. Zones having chroma of 3 or more. Areas of iron concentrations are typically high-chroma zones.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 6 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a zone with wet soil moisture status high in the profile on a permanent basis, or are shallow over nearly impervious bedrock or other

material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface

Iron concentrations. High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the zone with wet soil moisture status is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. A moundlike hill of glacial drift, composed chiefly of stratified sand and gravel.

Kame moraine. An end moraine that contains numerous kames. A group of kames along the front of a stagnant glacier, commonly comprising the slumped remnants of a formerly continuous

outwash plain built up over the foot of rapidly wasting or stagnant ice.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake bed. The bottom of a lake; a lake basin.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lakeshore. A narrow strip of land in contact with or bordering a lake; especially the beach of a lake.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landslide. (See slippage) The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$-bar or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-chroma zones. Zones having chroma of 2 or less. Areas of iron depletions are typically low-chroma zones.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

MAP. Mean annual precipitation, expressed in inches.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of glacial drift in a topographic landform resulting chiefly from the direct action of glacial ice. Some types are lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are

as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. Fine indicates less than 5 millimeters (about 0.2 inch); medium, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and coarse, more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat. Unconsolidated soil material consisting primarily of organic matter that is in an intermediate stage of decomposition such that a significant part of the material can be recognized and a significant part of the material can not be recognized.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. An extensive area of glaciofluvial material that was deposited by meltwater streams.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parts per million (ppm). The concentration of a substance, such as phosphorus or potassium, in one million parts of air-dried soil on a weight per weight basis.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Pitted outwash plain. An outwash plain marked by many irregular depressions, such as kettles,

shallow pits, and potholes, that formed by melting of incorporated ice masses.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area under conditions of weather and soil moisture and at the time of day that will result in the intensity of heat and spread required to accomplish specific management goals for forestland, wildlife, grazing, or wildfire reduction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material

that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapling. A tree ranging from 1 to 5 inches in diameter at breast height.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seedling. A tree less than 1 inch in diameter at breast height.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage. Soil slippage is a mass movement of soil that happens when the vegetation is removed and soil water is at or near saturation or when the slope is undercut.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 12 percent
Strongly sloping	12 to 18 percent
Moderately steep	18 to 25 percent
Steep	25 to 35 percent
Very steep	35 to 50 percent

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the substratum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), and granular. Structureless soils are either single grain (each grain by itself, as in dune sand) or massive (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsidence. The potential decrease in surface elevation as a result of the drainage of wet soils that have organic layers or semi-fluid, mineral layers. Subsidence, as a result of drainage, is attributed to 1) shrinkage from drying, 2) consolidation because of the loss of ground-water buoyancy, 3) compaction from tillage or manipulation, 4) wind erosion, 5) burning, and 6) biochemical oxidation.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that restricts roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land. A shallow depression in an undulating ground moraine due to uneven glacial deposition.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances. It commonly is a massive, arcuate ridge or complex of ridges underlain by till and other types of drift.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Till plain. An extensive area of nearly level to undulating or gently sloping soils that are underlain by till or consist of till. Slopes range from 0 to 6 percent.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of

coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Windthrow. The uprooting and tipping over of trees by the wind.

Woody peat. An accumulation of organic material that is predominantly composed of trees, shrubs, and other woody plants.

Tables

Table 1.--Temperature And Precipitation

[Recorded in the period 1961 to 1990 at Muncie Ball State University, Indiana]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	32.2	16.8	24.5	61	-14	14	2.01	0.96	2.92	5	7.1
February----	36.1	19.8	28.0	64	-8	25	2.10	0.85	3.15	5	6.9
March-------	48.4	30.5	39.4	77	5	132	3.33	2.00	4.53	7	3.7
April-------	61.6	40.7	51.2	84	20	345	3.50	2.32	4.57	7	0.4
May---------	72.1	51.1	61.6	90	30	669	3.86	2.36	5.20	7	0.0
June--------	81.3	60.8	71.0	95	43	926	3.62	1.90	5.12	6	0.0
July--------	85.1	64.6	74.8	97	40	1070	3.24	1.89	4.45	6	0.0
August------	83.0	62.2	72.6	94	45	1003	3.49	1.74	5.02	5	0.0
September---	76.9	55.3	66.1	92	35	779	3.19	1.02	4.97	5	0.0
October-----	64.7	43.5	54.1	85	24	432	2.68	1.58	3.84	6	0.3
November----	50.6	34.3	42.5	74	13	160	3.18	1.38	4.71	6	1.9
December----	37.9	23.3	30.6	64	-7	35	3.47	2.06	4.73	7	6.4
Yearly:											
Average---	60.8	41.9	51.4	---	---	---	---	---	---	---	---
Extreme---	102	-24	---	100	-16	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,590	37.67	25.57	45.48	72	26.7

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees. F)

Table 2.--Freeze Dates in Spring and Fall

[Recorded in the period 1961 to 1990 at Muncie Ball State University, Indiana]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 15	Apr. 24	May 9
2 years in 10 later than--	Apr. 9	Apr. 19	May 5
5 years in 10 later than--	Mar. 30	Apr. 9	Apr. 26
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 24	Oct. 12	Sept. 26
2 years in 10 earlier than--	Oct. 29	Oct. 17	Oct. 2
5 years in 10 earlier than--	Nov. 9	Oct. 27	Oct. 12

Table 3.--Growing Season

[Recorded for the period 1961 to 1990 at Muncie Ball State University, Indiana]

Probability	Daily Minimum Temperature During growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
9 years in 10	203	177	149
8 years in 10	210	185	156
5 years in 10	224	200	169
2 years in 10	238	215	181
1 year in 10	245	223	188

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
BdhAH	Bellcreek silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration	1,160	0.5
BdlC2	Belmore loam, 6 to 12 percent slopes, eroded	363	0.1
BdmA	Belmore silt loam, 0 to 1 percent slopes	1,455	0.6
BdmB2	Belmore silt loam, 1 to 5 percent slopes, eroded	1,206	0.5
BdsAN	Benadum silt loam, drained, 0 to 1 percent slopes	282	0.1
BdsAU	Benadum silt loam, undrained, 0 to 1 percent slopes	106	*
BltA	Blount silt loam, 0 to 2 percent slopes	8,782	3.5
BmlA	Blount-Del Rey silt loams, 0 to 1 percent slopes	42,880	16.9
CdgC3	Casco sandy clay loam, 6 to 15 percent slopes, severely eroded	611	0.2
CudA	Crosby silt loam, 0 to 2 percent slopes	24,442	9.6
DdxA	Digby-Haney silt loams, 0 to 1 percent slopes	3,048	1.2
EdxA	Eldean silt loam, 0 to 2 percent slopes	594	0.2
EdxB2	Eldean silt loam, 2 to 6 percent slopes, eroded	584	0.2
EdxC2	Eldean silt loam, 6 to 12 percent slopes, eroded	144	*
EdxD2	Eldean silt loam, 12 to 18 percent slopes, eroded	88	*
EdxE2	Eldean silt loam, 18 to 35 percent slopes, eroded	49	*
FexB2	Fox loam, 2 to 6 percent slopes, eroded	1,022	0.4
FexC2	Fox loam, 6 to 12 percent slopes, eroded	104	*
FgoB2	Fox-Muncie complex, 2 to 6 percent slopes, eroded	649	0.3
FgoC2	Fox-Muncie complex, 6 to 12 percent slopes, eroded	198	*
FgrC3	Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded	608	0.2
FgrD3	Fox-Muncie clay loams, 12 to 18 percent slopes, severely eroded	202	*
GlnAH	Gessie-Eel silt loams, 0 to 1 percent slopes, frequently flooded, brief duration	1,324	0.5
GlrB2	Glynwood silt loam, 1 to 4 percent slopes, eroded	20,162	8.0
GlyB3	Glynwood-Mississinewa clay loams, 2 to 6 percent slopes, severely eroded	544	0.2
HtbAN	Houghton muck, drained, 0 to 1 percent slopes	85	*
HtbAU	Houghton muck, undrained, 0 to 1 percent slopes	481	0.2
LdfAH	Lash loam, 0 to 1 percent slopes, frequently flooded, brief duration	338	0.1
LneAW	Lickcreek silt loam, 0 to 3 percent slopes, occasionally flooded, very brief duration	764	0.3
LshC3	Losantville clay loam, 5 to 10 percent slopes, severely eroded	1,580	0.6
LshD3	Losantville clay loam, 10 to 15 percent slopes, severely eroded	143	*
LteE	Lybrand-Belmore loams, 15 to 30 percent slopes	122	*
LteG	Lybrand-Belmore loams, 30 to 50 percent slopes	243	*
MecA	Martinsville loam, 0 to 2 percent slopes	550	0.2
MecB	Martinsville loam, 2 to 6 percent slopes	438	0.2
MmcB2	Miami loam, 2 to 6 percent slopes, eroded	3,640	1.4
MmcC2	Miami loam, 6 to 12 percent slopes, eroded	140	*
MoeB2	Miamian loam, 1 to 5 percent slopes, eroded	7,984	3.2
MoeC2	Miamian loam, 5 to 10 percent slopes, eroded	433	0.2
MorA	Milford mucky silty clay, pothole, 0 to 1 percent slopes	468	0.2
MphA	Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes	1,382	0.5
MprA	Milford silty clay loam, till substratum, 0 to 1 percent slopes	1,678	0.7
MryA	Millgrove silty clay loam, 0 to 1 percent slopes	4,355	1.7
MumC2	Morley silt loam, 5 to 10 percent slopes, eroded	1,012	0.4
MumD2	Morley silt loam, 10 to 15 percent slopes, eroded	445	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
MvbC3	Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded	2,657	1.0
MvbD3	Morley-Mississinewa clay loams, 10 to 15 percent slopes, severely eroded	334	0.1
MvxA	Mountpleasant silt loam, 0 to 2 percent slopes	367	0.1
MvxB2	Mountpleasant silt loam, 2 to 6 percent slopes, eroded	274	0.1
MvxC2	Mountpleasant silt loam, 6 to 12 percent slopes, eroded	94	*
MwzAN	Muskego muck, drained, 0 to 1 percent slopes	211	*
MwzAU	Muskego muck, undrained, 0 to 1 percent slopes	229	*
ObxA	Ockley silt loam, 0 to 2 percent slopes	1,117	0.4
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded	119	*
PgaA	Pella silty clay loam, 0 to 1 percent slopes	3,783	1.5
PkkA	Pewamo silty clay loam, 0 to 1 percent slopes	43,966	17.3
Pmg	Pits, gravel	301	0.1
Pml	Pits, quarry	99	*
ReyA	Rensselaer loam, 0 to 1 percent slopes	1,750	0.7
RroAH	Ross-Lash loams, 0 to 1 percent slopes, frequently flooded, brief duration	1,019	0.4
RrwB	Rawson loam, 1 to 5 percent slopes	718	0.3
SgmAH	Shoals silt loam, 0 to 1 percent slopes, frequently flooded, brief duration	1,655	0.7
SmsAH	Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration	6,186	2.4
SnlA	Southwest silt loam, 0 to 1 percent slopes	2,601	1.0
SvsE2	Strawn-Belmore loams, 15 to 30 percent slopes, eroded	414	0.2
SvsG	Strawn-Belmore loams, 30 to 50 percent slopes	221	*
ThrA	Treaty silty clay loam, 0 to 1 percent slopes	15,692	6.2
Uam	Udorthents, loamy	1,190	0.5
UccA	Urban land-Crosby-Treaty complex, 0 to 2 percent slopes	3,988	1.6
Ucu	Udorthents, loamy-skeletal	230	*
UdmA	Urban land-Blount-Pewamo complex, 0 to 2 percent slopes	6,725	2.7
UemB	Urban land-Fox complex, 1 to 6 percent slopes	1,600	0.6
UetB	Urban land-Glynwood complex, 2 to 6 percent slopes	2,494	1.0
UfuA	Urban land-Millgrove complex, 0 to 1 percent slopes	578	0.2
UhaB	Urban land-Wawaka-Miami complex, 1 to 6 percent slopes	4,601	1.8
W	Water	2,628	1.0
WbgB3	Wapahani clay loam, 1 to 5 percent slopes, severely eroded	145	*
WbgC3	Wapahani clay loam, 5 to 10 percent slopes, severely eroded	600	0.2
WdrA	Wawaka silt loam, 0 to 2 percent slopes	4,041	1.6
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded	891	0.4
WdrC2	Wawaka silt loam, 6 to 12 percent slopes, eroded	72	*
WonA	Williamstown silt loam, 0 to 2 percent slopes	2,981	1.2
	Total	253,459	100.0

* Less than 0.1 percent.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland

[See text for a description of the limitations and hazards listed in this table]

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
BdhAH:		
Bellcreek	Flooding, ponding, wetness, high pH, clodding	Flooding, ponding, wetness, trafficability, high pH
BdlC2:		
Belmore	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
BdmA:		
Belmore	Low pH, crusting, moderate available water capacity	Low pH
BdmB2:		
Belmore	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
BdsAN:		
Benadum	Ponding, wetness	Ponding, wetness, trafficability
BdsAU:		
Benadum	Ponding, wetness	Ponding, wetness, trafficability
BltA:		
Blount	Wetness, low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, low pH
BmlA:		
Blount	Wetness, low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, low pH
Del Rey	Wetness, low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, low pH
CdgC3:		
Casco	Equipment limitation (slope), limited rooting depth (sand and gravel), high pH, crusting, water erosion, low available water capacity	Equipment limitation (slope), limited rooting depth (sand and gravel), high pH, water erosion, low available water capacity
CudA:		
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, limited rooting depth (dense till), low pH

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
DdxA:		
Digby	Wetness, low pH, crusting, moderate available water capacity	Trafficability, low pH
Haney	Low pH, crusting, moderate available water capacity	Low pH
EdxA:		
Eldean	Limited rooting depth (sand and gravel), low pH, crusting, low available water capacity	Limited rooting depth (sand and gravel), low pH, low available water capacity
EdxB2:		
Eldean	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, low available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion, low available water capacity
EdxC2:		
Eldean	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, low available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion, low available water capacity
EdxD2:		
Eldean	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, crusting, water erosion, low available water capacity	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, water erosion, low available water capacity
EdxE2:		
Eldean	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, water erosion
FexB2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
FexC2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
FgoB2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
FgoB2:		
Muncie	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
FgoC2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
Muncie	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
FgrC3:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, low available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion, low available water capacity
Muncie	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
FgrD3:		
Fox	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, crusting, water erosion, low available water capacity	Equipment limitation (slope), limited rooting depth (sand and gravel), low pH, water erosion, low available water capacity
Muncie	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
GlnAH:		
Gessie	Flooding, high pH, crusting	Flooding, high pH
Eel	Flooding	Flooding
GlrB2:		
Glynwood	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
GlyB3:		
Glynwood	Wetness, limited rooting depth (dense till), low pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion, low available water capacity
Mississinewa	Wetness, limited rooting depth (dense till), high pH, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), high pH, water erosion, low available water capacity

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
HtbAN:		
Houghton	Ponding, wetness, low pH, wind erosion, subsidence	Ponding, wetness, trafficability, low pH, wind erosion, subsidence
HtbAU:		
Houghton	Ponding, wetness, low pH, wind erosion, subsidence	Ponding, wetness, trafficability, low pH, wind erosion, subsidence
LdfAH:		
Lash	Flooding, high pH	Flooding, high pH
LneAW:		
Lickcreek	Flooding, low pH	Flooding, low pH
LshC3:		
Losantville	Wetness, limited rooting depth (dense till), high pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), high pH, water erosion, low available water capacity
LshD3:		
Losantville	Equipment limitation (slope), wetness, limited rooting depth (dense till), high pH, crusting, water erosion, low available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), high pH, water erosion, low available water capacity
LteE:		
Lybrand	Equipment limitation (slope), low pH, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), low pH, water erosion
Belmore	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
LteG:		
Lybrand	Equipment limitation (slope), low pH, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), low pH, water erosion
Belmore	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
MecA:		
Martinsville	Low pH, crusting	Low pH
MecB:		
Martinsville	Low pH, crusting, water erosion	Low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
MmcB2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MmcC2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MoeB2:		
Miamian	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MoeC2:		
Miamian	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MorA:		
Milford	Ponding, wetness, low pH, clodding	Ponding, wetness, trafficability, low pH
MphA:		
Milford	Ponding, wetness, low pH, clodding	Ponding, wetness, trafficability, low pH
MprA:		
Milford	Ponding, wetness, low pH, clodding	Ponding, wetness, trafficability, low pH
MryA:		
Millgrove	Ponding, wetness, low pH	Ponding, wetness, trafficability, low pH
MumC2:		
Morley	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MumD2:		
Morley	Equipment limitation (slope), limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
MvbC3:		
Morley	Limited rooting depth (dense till), low pH, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion, low available water capacity
Mississinewa	Wetness, limited rooting depth (dense till), high pH, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), high pH, water erosion, low available water capacity
MvbD3:		
Morley	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion, low available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion, low available water capacity
Mississinewa	Equipment limitation (slope), wetness, limited rooting depth (dense till), high pH, water erosion, low available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), high pH, water erosion, low available water capacity
MvxA:		
Mountpleasant	Low pH, crusting	Low pH
MvxB2:		
Mountpleasant	Low pH, crusting, water erosion	Low pH, water erosion
MvxC2:		
Mountpleasant	Low pH, crusting, water erosion	Low pH, water erosion
MwzAN:		
Muskego	Ponding, wetness, low pH, wind erosion, restricted permeability	Ponding, wetness, trafficability, low pH, wind erosion
MwzAU:		
Muskego	Ponding, wetness, low pH, wind erosion, restricted permeability	Ponding, wetness, trafficability, low pH, wind erosion
ObxA:		
Ockley	Low pH, crusting	Low pH
ObxB2:		
Ockley	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
PgaA:		
Pella	Ponding, wetness, high pH	Ponding, wetness, trafficability, high pH
PkkA:		
Pewamo	Ponding, wetness	Ponding, wetness, trafficability

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
Pmg:		
Pits, gravel	Not rated	Not rated
Pml:		
Pits, quarry	Not rated	Not rated
ReyA:		
Rensselaer	Ponding, wetness	Ponding, wetness, trafficability
RroAH:		
Ross	Flooding, high pH	Flooding, high pH
Lash	Flooding, high pH	Flooding, high pH
RrwB:		
Rawson	Low pH, crusting, water erosion, moderate available water capacity	Low pH, water erosion
SgmAH:		
Shoals	Flooding, wetness, high pH	Flooding, trafficability, high pH
SmsAH:		
Sloan	Flooding, ponding, wetness, high pH	Flooding, ponding, wetness, trafficability, high pH
SnlA:		
Southwest	Ponding, wetness, low pH, crusting	Ponding, wetness, trafficability, low pH
SvsE2:		
Strawn	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
Belmore	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
SvsG:		
Strawn	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
Belmore	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
ThrA:		
Treaty	Ponding, wetness, low pH	Ponding, wetness, trafficability, low pH
Uam:		
Udorthents	Not rated	Not rated

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
UccA:		
Urban land	Built-up land	Built-up land
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, limited rooting depth (dense till), low pH
Treaty	Ponding, wetness, low pH	Ponding, wetness, trafficability, low pH
Ucu:		
Udorthents	Not rated	Not rated
UdmA:		
Urban land	Built-up land	Built-up land
Blount	Wetness, low pH, crusting, moderate available water capacity, restricted permeability	Trafficability, low pH
Pewamo	Ponding, wetness	Ponding, wetness, trafficability
UemB:		
Urban land	Built-up land	Built-up land
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
UetB:		
Urban land	Built-up land	Built-up land
Glynwood	Limited rooting depth (dense till), low pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion, low available water capacity
UfuA:		
Urban land	Built-up land	Built-up land
Millgrove	Ponding, wetness, low pH	Ponding, wetness, trafficability, low pH
UhaB:		
Urban land	Built-up land	Built-up land
Wawaka	Low pH, crusting, water erosion	Low pH, water erosion
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pastureland--Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
W:		
Water	Water	Water
WbgB3:		
Wapahani	Wetness, limited rooting depth (dense till), high pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), high pH, water erosion, low available water capacity
WbgC3:		
Wapahani	Wetness, limited rooting depth (dense till), high pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), high pH, water erosion, low available water capacity
WdrA:		
Wawaka	Low pH, crusting	Low pH
WdrB2:		
Wawaka	Low pH, crusting, water erosion	Low pH, water erosion
WdrC2:		
Wawaka	Low pH, crusting, water erosion	Low pH, water erosion
WonA:		
Williamstown	Limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH

Table 6.--Land Capability and Yields per Acre of Crops and Pasture

[Yields are those that can be expected under a high level of management in nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
BdhAH: Bellcreek	3w	118	41	---	3.8	7.9
BdlC2: Belmore	3e	103	36	42	3.4	6.9
BdmA: Belmore	2s	120	42	48	4	8
BdmB2: Belmore	2e	114	40	43	3.7	7.5
BdsAN: Benadum	3w	92	32	37	3	6.2
BdsAU: Benadum	5w	---	---	---	---	2.1
BltA: Blount	2w	105	37	47	3.5	7
BmlA: Blount Del Rey	2w	107	38	48	3.5	7.2
CdgC3: Casco	4e	64	23	26	2.1	4.3
CudA: Crosby	2w	107	38	48	3.5	7.1
DdxA: Digby Haney	2w	124	44	50	4.1	8.3
EdxA: Eldean	2s	82	28	40	2.7	5.4
EdxB2: Eldean	2e	77	27	37	2.4	5.1
EdxC2: Eldean	3e	68	24	32	2.2	4.6
EdxD2: Eldean	4e	60	21	28	2	4.2
EdxE2: Eldean	6e	44	16	17	1.5	2.9
FexB2: Fox	2e	89	31	43	2.9	5.9
FexC2: Fox	3e	81	28	36	2.7	5.3

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
FgoB2: Fox Muncie	2e	94	33	43	3.1	6.2
FgoC2: Fox Muncie	3e	83	29	38	2.8	5.4
FgrC3: Fox Muncie	4e	75	26	35	2.5	5
FgrD3: Fox Muncie	6e	62	22	28	2.1	4.1
GlnAH: Gessie Eel	2w	115	40	---	3.8	7.5
GlrB2: Glynwood	3e	91	32	42	2.9	6.1
GlyB3: Glynwood Mississinewa	3e	78	28	35	2.5	5.1
HtbAN: Houghton	3w	119	42	48	3.9	8.1
HtbAU: Houghton	5w	---	---	---	---	2.8
LdfAH: Lash	2w	100	35	---	3.2	6.6
LneAW: Lickcreek	2w	127	45	45	4.1	8.5
LshC3: Losantville	4e	63	22	27	2	4.2
LshD3: Losantville	6e	52	18	20	1.6	3.4
LteE: Lybrand Belmore	6e	59	21	23	2.1	3.9
LteG: Lybrand Belmore	7e	---	---	---	---	---
MecA: Martinsville	1	120	42	48	4	8
MecB: Martinsville	2e	120	42	48	4	8
MmcB2: Miami	2e	104	37	46	3.5	6.9

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
MmcC2: Miami	3e	97	34	43	3.2	6.3
MoeB2: Miamian	2e	90	32	41	3	6
MoeC2: Miamian	3e	82	29	36	2.7	5.3
MorA: Milford	4w	71	25	28	2.3	4.8
MphA: Milford	2w	134	47	52	4.4	8.9
MprA: Milford	2w	127	44	51	4.2	8.6
MryA: Millgrove	2w	130	46	49	4.2	8.6
MumC2: Morley	3e	82	29	37	2.7	5.4
MumD2: Morley	4e	67	24	27	2.3	4.6
MvbC3: Morley Mississinewa	4e	71	25	32	2.2	4.7
MvbD3: Morley Mississinewa	6e	59	20	23	1.9	3.9
MvxA: Mountpleasant	1	96	33	43	3.1	6.2
MvxB2: Mountpleasant	2e	91	32	41	3	6
MvxC2: Mountpleasant	3e	82	29	37	2.7	5.4
MwzAN: Muskego	4w	102	36	41	3.3	6.8
MwzAU: Muskego	6w	---	---	---	---	2.5
ObxA: Ockley	1	110	39	44	3.6	7.3
ObxB2: Ockley	2e	105	37	42	3.5	7
PgaA: Pella	2w	138	49	56	4.6	9.2
PkkA: Pewamo	2w	125	44	56	4.1	8.4

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
Pmg:						
Pits, gravel.						
Pml:						
Pits, quarry.						
ReyA:	2w	148	52	57	4.8	9.9
Rensselaer						
RroAH:	2w	119	42	---	3.9	7.9
Ross						
Lash						
RrwB:	2e	111	39	45	3.7	7.3
Rawson						
SgmAH:	2w	128	44	---	4.2	8.4
Shoals						
SmsAH:	3w	128	44	---	4.2	8.4
Sloan						
SnlA:	2w	126	44	45	4.1	8.3
Southwest						
SvsE2:	6e	66	23	24	2.2	4.3
Strawn						
Belmore						
SvsG:	7e	---	---	---	---	---
Strawn						
Belmore						
ThrA:	2w	147	52	59	4.8	9.7
Treaty						
Uam:						
Udorthents.						
UccA:						
Urban land.						
Crosby.						
Treaty.						
Ucu:						
Udorthents.						
UdmA:						
Urban land.						
Blount.						
Pewamo.						
UemB:						
Urban land.						
Fox.						
UetB:						
Urban land.						
Glynwood.						
UfuA:						
Urban land.						
Millgrove.						

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
UhaB:						
Urban land.						
Wawaka.						
Miami.						
W:						
Water.						
WbgB3:	3e	93	34	43	3.1	6.2
Wapahani						
WbgC3:	4e	87	31	36	3	5.6
Wapahani						
WdrA:	1	111	39	45	3.7	7.3
Wawaka						
WdrB2:	2e	106	37	43	3.6	7.1
Wawaka						
WdrC2:	3e	97	34	37	3.2	6.2
Wawaka						
WonA:	2s	110	39	49	3.7	7.2
Williamstown						

Table 7.--Prime Farmland

[Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name]

Map symbol	Soil name
BdhAH	Bellcreek silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and either protected from flooding or not frequently flooded during the growing season)
BdmA	Belmore silt loam, 0 to 1 percent slopes
BdmB2	Belmore silt loam, 1 to 5 percent slopes, eroded
BltA	Blount silt loam, 0 to 2 percent slopes (where drained)
BmlA	Blount-Del Rey silt loams, 0 to 1 percent slopes (where drained)
CudA	Crosby silt loam, 0 to 2 percent slopes (where drained)
DdxA	Digby-Haney silt loams, 0 to 1 percent slopes (where drained)
EdxA	Eldean silt loam, 0 to 2 percent slopes
EdxB2	Eldean silt loam, 2 to 6 percent slopes, eroded
FexB2	Fox loam, 2 to 6 percent slopes, eroded
FgoB2	Fox-Muncie complex, 2 to 6 percent slopes, eroded
GlnAH	Gessie-Eel silt loams, 0 to 1 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
GlrB2	Glynwood silt loam, 1 to 4 percent slopes, eroded
LdfAH	Lash loam, 0 to 1 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
LneAW	Lickcreek silt loam, 0 to 3 percent slopes, occasionally flooded, very brief duration
MecA	Martinsville loam, 0 to 2 percent slopes
MecB	Martinsville loam, 2 to 6 percent slopes
MmcB2	Miami loam, 2 to 6 percent slopes, eroded
MoeB2	Miamian loam, 1 to 5 percent slopes, eroded
MphA	Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes (where drained)
MprA	Milford silty clay loam, till substratum, 0 to 1 percent slopes (where drained)
MryA	Millgrove silty clay loam, 0 to 1 percent slopes (where drained)
MvxA	Mountpleasant silt loam, 0 to 2 percent slopes
MvxB2	Mountpleasant silt loam, 2 to 6 percent slopes, eroded
ObxA	Ockley silt loam, 0 to 2 percent slopes
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded
PgaA	Pella silty clay loam, 0 to 1 percent slopes (where drained)
PkkA	Pewamo silty clay loam, 0 to 1 percent slopes (where drained)
ReyA	Rensselaer loam, 0 to 1 percent slopes (where drained)
RroAH	Ross-Lash loams, 0 to 1 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
RrwB	Rawson loam, 1 to 5 percent slopes
SgmAH	Shoals silt loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and either protected from flooding or not frequently flooded during the growing season)
SmsAH	Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and either protected from flooding or not frequently flooded during the growing season)
SnlA	Southwest silt loam, 0 to 1 percent slopes (where drained)
ThrA	Treaty silty clay loam, 0 to 1 percent slopes (where drained)
WdrA	Wawaka silt loam, 0 to 2 percent slopes
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded
WonA	Williamstown silt loam, 0 to 2 percent slopes

Table 8.--Windbreaks and Environmental Plantings

[Absence of an entry indicates that trees generally do not grow to the given height]

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
BdhAH:					
Bellcreek----	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
BdlC2:					
Belmore------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
BdmA:					
Belmore------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
BdmB2: Belmore	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
BdsAN: Benadum	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
BdsAU: Benadum.					
BltA: Blount	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
BmlA:					
Blount-------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Del Rey------	American elder, black chokeberry, common winterberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
CdgC3:					
Casco--------	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
CudA:					
Crosby-------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
DdxA:					
Digby--------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Haney--------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
EdxA:					
Eldean-------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EdxB2:					
Eldean-------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
EdxC2:					
Eldean-------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EdxD2:					
Eldean-------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EdxE2:					
Eldean-------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FexB2:					
Fox----------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FexC2:					
Fox----------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
FgoB2:					
Fox	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Muncie	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
FgoC2:					
Fox	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Muncie	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
FgrC3:					
Fox	American elder, common juniper, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red maple, river birch, white oak.	Eastern cottonwood, imperial Carolina poplar.
Muncie	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, silky dogwood.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black oak, blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak, white spruce.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FgrD3:					
Fox	American elder, common juniper, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red maple, river birch, white oak.	Eastern cottonwood, imperial Carolina poplar.
Muncie	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, silky dogwood.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black oak, blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak, white spruce.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
GlnAH:					
Gessie-------	Gray dogwood, redosier dogwood, silky dogwood.	Nannyberry, pawpaw, roughleaf dogwood.	Hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, black walnut, bur oak.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Eel----------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
GlrB2:					
Glynwood-----	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
GlyB3:					
Glynwood-----	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, black oak, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
GlyB3:					
Mississinewa-	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
HtbAN:					
Houghton-----	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
HtbAU:					
Houghton.					
LdfAH:					
Lash---------	Gray dogwood, redosier dogwood, silky dogwood.	Nannyberry, pawpaw, roughleaf dogwood.	Hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, black walnut, bur oak.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
LneAW:					
Lickcreek----	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
LshC3:					
Losantville--	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
LshD3:					
Losantville--	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
LteE:					
Lybrand------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Belmore------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
LteG:					
Lybrand------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
LteG:					
Belmore	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
MecA:					
Martinsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
MecB:					
Martinsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MmcB2: Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
MmcC2: Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
MoeB2: Miamian	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MoeC2:					
Miamian------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
MorA:					
Milford------	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MphA:					
Milford------	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MprA:					
Milford------	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MryA: Millgrove----	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MumC2: Morley-------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
MumD2: Morley-------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MvbC3:					
Morley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, black oak, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Mississinewa	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
MvbD3:					
Morley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, black oak, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Mississinewa	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MvxA:					
Mountpleasant	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
MvxB2:					
Mountpleasant	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
MvxC2:					
Mountpleasant	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
MwzAN:					
Muskego------	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MwzAU: Muskego.					
ObxA: Ockley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
ObxB2: Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
PgaA: Pella	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
PkkA:					
Pewamo	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Pmg:					
Pits, gravel.					
Pml:					
Pits, quarry.					
ReyA:					
Rensselaer	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
RroAH:					
Ross	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Lash	Gray dogwood, redosier dogwood, silky dogwood.	Nannyberry, pawpaw, roughleaf dogwood.	Hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, black walnut, bur oak.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
RrwB:					
Rawson-------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
SgmAH:					
Shoals-------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, pawpaw, roughleaf dogwood.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SmsAH:					
Sloan--------	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SnlA:					
Southwest----	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
SvsE2:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Belmore	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
SvsG:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Belmore	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
ThrA:					
Treaty	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Uam:					
Udorthents.					
UccA:					
Urban land.					
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Treaty	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Ucu:					
Udorthents.					
UdmA:					
Urban land.					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UdmA:					
Blount	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Pewamo	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UemB:					
Urban land.					
Fox	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UetB:					
Urban land.					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UetB:					
Glynwood-----	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
UfuA:					
Urban land.					
Millgrove----	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UhaB:					
Urban land.					
Wawaka-------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UhaB:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
W:					
Water.					
WbgB3:					
Wapahani	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
WbgC3:					
Wapahani	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, green ash, white spruce.	American sycamore, eastern cottonwood, imperial Carolina poplar.
WdrA:					
Wawaka	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
WdrB2:					
Wawaka-------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WdrC2:					
Wawaka-------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WonA:					
Williamstown-	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 9.--Forest Productivity

[Absence of an entry indicates that information was not available]

Map symbol and soil name	Potential productivity			Trees to plant
	Local plants	Site index	Volume of wood fiber	
			cu ft/ac	
BdhAH:				
Bellcreek	Pin oak	85	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
BdlC2:				
Belmore	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BdmA:				
Belmore	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BdmB2:				
Belmore	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BdsAN:				
Benadum	---	---	---	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
BdsAU:				
Benadum--------	---	---	---	Green ash, pin oak, silver maple, swamp white oak.
BltA:				
Blount---------	Northern red oak----	65	43	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak-----------	65	43	
BmlA:				
Blount---------	Northern red oak----	65	43	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak-----------	65	43	
Del Rey--------	Northern red oak----	70	57	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak-----------	70	57	
CdgC3:				
Casco----------	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
CudA:				
Crosby---------	Northern red oak----	86	72	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	Tuliptree-----------	94	100	
	White ash-----------	87	86	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			cu ft/ac	
DdxA:				
Digby----------	Northern red oak----	80	57	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak-----------	75	57	
Haney----------	Northern red oak----	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak-----------	75	57	
EdxA:				
Eldean---------	Black oak-----------	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
	Northern red oak----	80	57	
	White oak-----------	80	57	
EdxB2:				
Eldean---------	Black oak-----------	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
	Northern red oak----	80	57	
	White oak-----------	80	57	
EdxC2:				
Eldean---------	Black oak-----------	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
	Northern red oak----	80	57	
	White oak-----------	80	57	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
EdxD2:				
Eldean---------	Black oak----------- Northern red oak---- White oak-----------	80 80 80	57 57 57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
EdxE2:				
Eldean---------	Black oak----------- Northern red oak---- White oak-----------	80 80 80	57 57 57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
FexB2:				
Fox------------	Northern red oak----	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
FexC2:				
Fox------------	Northern red oak----	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
FgoB2:				
Fox	Northern red oak	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
Muncie	Bur oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern Red oak	80	57	
	White oak	80	57	
FgoC2:				
Fox	Northern red oak	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
Muncie	Bur oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	80	57	
	White oak	80	57	
FgrC3:				
Fox	---	---	---	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
FgrC3:				
Muncie	Bur oak	90	72	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	Northern red oak	80	57	
	White oak	80	57	
FgrD3:				
Fox	---	---	---	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Muncie	Bur oak	90	72	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	Northern red oak	80	57	
	White oak	80	57	
GlnAH:				
Gessie	---	---	---	American sycamore, bitternut hickory, black walnut, bur oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
Eel	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
GlrB2:				
Glynwood	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	80	57	
GlyB3:				
Glynwood	Black oak	80	57	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	Northern red oak	80	57	
	White oak	80	57	
Mississinewa	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
HtbAN:				
Houghton	Red maple	51	29	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Silver maple	76	29	
HtbAU:				
Houghton.				
LdfAH:				
Lash	---	---	---	American sycamore, bitternut hickory, black walnut, bur oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
LneAW:				
Lickcreek------	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.
LshC3:				
Losantville----	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
LshD3:				
Losantville----	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
LteE:				
Lybrand--------	---	---	---	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Belmore--------	Northern red oak----	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
LteG:				
Lybrand	---	---	---	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Belmore	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MecA:				
Martinsville	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	80	57	
MecB:				
Martinsville	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	80	57	
MmcB2:				
Miami	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	90	72	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			cu ft/ac	
MmcC2:				
Miami----------	Tuliptree-----------	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak-----------	90	72	
MoeB2:				
Miamian--------	Northern red oak----	87	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MoeC2:				
Miamian--------	Northern red oak----	87	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MorA:				
Milford--------	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
MphA:				
Milford--------	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
MprA:				
Milford--------	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
MryA:				
Millgrove	Pin oak	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Swamp white oak	85	72	
MumC2:				
Morley	Eastern white pine	74	157	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	105	114	
MumD2:				
Morley	---	---	---	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MvbC3:				
Morley	Black oak	89	72	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	Eastern white pine	74	157	
	Tuliptree	105	114	
Mississinewa	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
MvbD3:				
Morley---------	Black oak-----------	89	72	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	Eastern white pine--	74	157	
	Tuliptree-----------	105	114	
Mississinewa---	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
MvxA:				
Mountpleasant--	Tuliptree-----------	74	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak-----------	93	72	
MvxB2:				
Mountpleasant--	Tuliptree-----------	74	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak-----------	93	72	
MvxC2:				
Mountpleasant--	Tuliptree-----------	74	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak-----------	93	72	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to plant
	Local plants	Site index	Volume of wood fiber	
			cu ft/ac	
MwzAN:				
Muskego	Red maple	51	29	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
MwzAU:				
Muskego.				
ObxA:				
Ockley	Northern red oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	100	114	
	White oak	90	72	
ObxB2:				
Ockley	Northern red oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	100	114	
	White oak	90	72	
PgaA:				
Pella	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
PkkA:				
Pewamo	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Red maple	71	43	
Pmg:				
Pits, gravel.				
Pml:				
Pits, quarry.				

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to plant
	Local plants	Site index	Volume of wood fiber	
			cu ft/ac	
ReyA:				
Rensselaer-----	Pin oak------------	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Sweetgum-----------	90	100	
	White oak----------	75	57	
RroAH:				
Ross-----------	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.
Lash-----------	---	---	---	American sycamore, bitternut hickory, black walnut, bur oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
RrwB:				
Rawson---------	Northern red oak----	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak----------	75	57	
SgmAH:				
Shoals---------	Pin oak------------	90	72	Bitternut hickory, blackgum, bur oak, green ash, pin oak, shellbark hickory, Shumard's oak, swamp white oak.
SmsAH:				
Sloan----------	Pin oak------------	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to plant
	Local plants	Site index	Volume of wood fiber	
			cu ft/ac	
SnlA:				
Southwest------	Pin oak------------	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Red maple-----------	70	43	
SvsE2:				
Strawn---------	Northern red oak----	80	57	Bitternut hickory, black walnut, Blue Ash, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
	White oak-----------	80	57	
Belmore--------	Northern red oak----	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
SvsG:				
Strawn---------	Northern red oak----	80	57	Bitternut hickory, black walnut, Blue Ash, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
	White oak-----------	80	57	
Belmore--------	Northern red oak----	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
ThrA:				
Treaty	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
Uam:				
Udorthents.				
UccA:				
Urban land.				
Crosby	Northern red oak	86	72	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	Tuliptree	94	100	
	White ash	87	86	
Treaty	---	---	---	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
Ucu:				
Udorthents.				
UdmA:				
Urban land.				
Blount	Northern red oak	65	43	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak	65	43	
Pewamo	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Red maple	71	43	
UemB:				
Urban land.				

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			cu ft/ac	
UemB:				
Fox	Northern red oak	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
UetB:				
Urban land.				
Glynwood	Northern red oak	80	57	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	80	57	
UfuA:				
Urban land.				
Millgrove	Pin oak	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
	Swamp white oak	85	72	
UhaB:				
Urban land.				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	white oak	74	57	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
UhaB:				
Miami	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	90	72	
W:				
Water.				
WbgB3:				
Wapahani	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
WbgC3:				
Wapahani	---	---	---	Bitternut hickory, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
WdrA:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
WdrB2:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plants	Site index	Volume of wood fiber	Trees to plant
			cu ft/ac	
WdrC2:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
WonA:				
Williamstown	Tuliptree	90	129	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White ash	90	129	

* Eastern white pine, northern red oak, tuliptree, and white oak are not recommended for low-lying areas of these soils.

Table 10a.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Strength	1.00
	Wetness	1.00	Flooding	1.00		
	Strength	0.50	Strength	0.50		
			Wetness	0.50		
BdlC2:						
Belmore	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
BdmA:						
Belmore	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
BdmB2:						
Belmore	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
BdsAN:						
Benadum	Severe		Poorly suited		Severe	
	Strength	1.00	Ponding	1.00	Strength	1.00
	Wetness	1.00	Strength	0.50		
			Wetness	0.50		
BdsAU:						
Benadum	Severe		Poorly suited		Severe	
	Strength	1.00	Ponding	1.00	Strength	1.00
	Wetness	1.00	Wetness	1.00		
			Strength	0.50		
BltA:						
Blount	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
BmlA:						
Blount	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
Del Rey	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
CdgC3:						
Casco	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
	Landslides	0.10	Strength	0.50		
			Landslides	0.10		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CudA:						
Crosby	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
DdxA:						
Digby	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
Haney	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
EdxA:						
Eldean	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
EdxB2:						
Eldean	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
EdxC2:						
Eldean	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
EdxD2:						
Eldean	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
	Landslides	0.10	Landslides	0.10		
EdxE2:						
Eldean	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
			Landslides	0.50		
FexB2:						
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
FexC2:						
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
FgoB2:						
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
Muncie	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
FgoC2:						
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FgoC2:						
Muncie	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
FgrC3:						
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
Muncie	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
FgrD3:						
Fox	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Sandiness	0.50	Strength	0.50		
	Landslides	0.10	Landslides	0.10		
Muncie	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
	Landslides	0.10	Landslides	0.10		
GlnAH:						
Gessie	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
Eel	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
GlrB2:						
Glynwood	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Wetness	0.50		
GlyB3:						
Glynwood	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Wetness	0.50		
Mississinewa	Slight		Moderately suited		Severe	
			Strength	0.50	Strength	1.00
			Wetness	0.50		
HtbAN:						
Houghton	Severe		Poorly suited		Moderate	
	Wetness	1.00	Ponding	1.00	Wetness	0.50
HtbAU:						
Houghton	Severe		Poorly suited		Moderate	
	Wetness	1.00	Ponding	1.00	Wetness	0.50

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LdfAH:						
Lash----------------	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
LneAW:						
Lickcreek-----------	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
LshC3:						
Losantville---------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Slope	0.50		
			Wetness	0.50		
LshD3:						
Losantville---------	Moderate		Poorly suited		Severe	
	Strength	0.50	Slope	1.00	Strength	1.00
	Landslides	0.10	Strength	0.50		
			Wetness	0.50		
			Landslides	0.10		
LteE:						
Lybrand-------------	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		
Belmore-------------	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		
LteG:						
Lybrand-------------	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		
Belmore-------------	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
			Landslides	0.50		
MecA:						
Martinsville--------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
MecB:						
Martinsville--------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
MmcB2:						
Miami---------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MmcC2:						
Miami---------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
MoeB2:						
Miamian-------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
MoeC2:						
Miamian-------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Slope	0.50		
MorA:						
Milford-------------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
	Stickiness/slope	0.50	Strength	0.50		
			Stickiness	0.50		
MphA:						
Milford-------------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
MprA:						
Milford-------------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
MryA:						
Millgrove-----------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
MumC2:						
Morley--------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Slope	0.50		
MumD2:						
Morley--------------	Moderate		Poorly suited		Severe	
	Strength	0.50	Slope	1.00	Strength	1.00
	Landslides	0.10	Strength	0.50		
			Landslides	0.10		
MvbC3:						
Morley--------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Slope	0.50		
Mississinewa--------	Slight		Moderately suited		Severe	
			Strength	0.50	Strength	1.00
			Slope	0.50		
			Wetness	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MvbD3:						
Morley--------------	Moderate		Poorly suited		Severe	
	Strength	0.50	Slope	1.00	Strength	1.00
	Landslides	0.10	Strength	0.50		
			Landslides	0.10		
Mississinewa--------	Slight		Poorly suited		Severe	
	Landslides	0.10	Slope	1.00	Strength	1.00
			Strength	0.50		
			Wetness	0.50		
			Landslides	0.10		
MvxA:						
Mountpleasant-------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
MvxB2:						
Mountpleasant-------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
MvxC2:						
Mountpleasant-------	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
MwzAN:						
Muskego-------------	Severe		Poorly suited		Severe	
	Strength	1.00	Ponding	1.00	Strength	1.00
	Wetness	1.00	Strength	1.00		
			Wetness	0.50		
MwzAU:						
Muskego-------------	Severe		Poorly suited		Severe	
	Strength	1.00	Ponding	1.00	Strength	1.00
	Wetness	1.00	Strength	1.00	Wetness	0.50
			Wetness	1.00		
ObxA:						
Ockley--------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
ObxB2:						
Ockley--------------	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
PgaA:						
Pella---------------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
PkkA:						
Pewamo--------------	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
Pmg:						
Pits, gravel--------	Not rated		Not rated		Not rated	

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pml:						
Pits, quarry	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
RroAH:						
Ross	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
Lash	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Strength	0.50		
RrwB:						
Rawson	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
SgmAH:						
Shoals	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
SmsAH:						
Sloan	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Strength	1.00
	Wetness	0.75	Flooding	1.00		
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
SnlA:						
Southwest	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
SvsE2:						
Strawn	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		
Belmore	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		
SvsG:						
Strawn	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
	Strength	0.50	Landslides	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SvsG:						
Belmore	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Strength	1.00
	Landslides	0.50	Strength	0.50		
			Landslides	0.50		
ThrA:						
Treaty	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
Uam:						
Udorthents	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
Treaty	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
Ucu:						
Udorthents	Moderate		Moderately suited		Moderate	
	Sandiness	0.50	Sandiness	0.50	Strength	0.50
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Moderate		Moderately suited		Severe	
	Strength	0.50	Wetness	0.50	Strength	1.00
			Strength	0.50		
Pewamo	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Wetness	0.50		
UfuA:						
Urban land	Not rated		Not rated		Not rated	

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UfuA:						
Millgrove	Moderate		Poorly suited		Severe	
	Wetness	0.75	Ponding	1.00	Strength	1.00
	Strength	0.50	Wetness	0.50		
			Strength	0.50		
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
Miami	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Wetness	0.50		
WbgC3:						
Wapahani	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
			Slope	0.50		
			Wetness	0.50		
WdrA:						
Wawaka	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
WdrB2:						
Wawaka	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00
WdrC2:						
Wawaka	Moderate		Moderately suited		Severe	
	Strength	0.50	Slope	0.50	Strength	1.00
			Strength	0.50		
WonA:						
Williamstown	Moderate		Moderately suited		Severe	
	Strength	0.50	Strength	0.50	Strength	1.00

Table 10b.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Strength	0.50
					Wetness	0.50
BdlC2:						
Belmore-------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
BdmA:						
Belmore-------------	Slight		Slight		Moderately suited	
					Strength	0.50
BdmB2:						
Belmore-------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
BdsAN:						
Benadum-------------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Strength	0.50
					Wetness	0.50
BdsAU:						
Benadum-------------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	1.00
					Strength	0.50
BltA:						
Blount--------------	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
BmlA:						
Blount--------------	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
Del Rey-------------	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
CdgC3:						
Casco---------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Slope	0.50
					Strength	0.50
					Landslides	0.10

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CudA:						
Crosby----------------	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
DdxA:						
Digby-----------------	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
Haney-----------------	Slight		Slight		Moderately suited	
					Strength	0.50
EdxA:						
Eldean----------------	Slight		Slight		Moderately suited	
					Strength	0.50
EdxB2:						
Eldean----------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
EdxC2:						
Eldean----------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
EdxD2:						
Eldean----------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.10
EdxE2:						
Eldean----------------	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
FexB2:						
Fox-------------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
FexC2:						
Fox-------------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
FgoB2:						
Fox-------------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
Muncie----------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
FgoC2:						
Fox-------------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
FgoC2:						
Muncie	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
FgrC3:						
Fox	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Slope	0.50
					Strength	0.50
Muncie	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
FgrD3:						
Fox	Moderate		Moderate		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
					Strength	0.50
					Landslides	0.10
Muncie	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.10
GlnAH:						
Gessie	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
Eel	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
GlrB2:						
Glynwood	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Wetness	0.50
GlyB3:						
Glynwood	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Wetness	0.50
Mississinewa	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Wetness	0.50
HtbAN:						
Houghton	Very severe		Very severe		Poorly suited	
	High organic content	1.00	High organic content	1.00	Ponding	1.00
HtbAU:						
Houghton	Very severe		Very severe		Poorly suited	
	High organic content	1.00	High organic content	1.00	Ponding	1.00

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
LdfAH:						
Lash----------------	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
LneAW:						
Lickcreek-----------	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
LshC3:						
Losantville---------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
					Wetness	0.50
LshD3:						
Losantville---------	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Wetness	0.50
					Landslides	0.10
LteE:						
Lybrand-------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
Belmore-------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
LteG:						
Lybrand-------------	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
Belmore-------------	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
MecA:						
Martinsville--------	Slight		Slight		Moderately suited	
					Strength	0.50
MecB:						
Martinsville--------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
MmcB2:						
Miami---------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
MmcC2:						
Miami---------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
MoeB2:						
Miamian	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
MoeC2:						
Miamian	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
MorA:						
Milford	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
					Stickiness	0.50
MphA:						
Milford	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
MprA:						
Milford	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
MryA:						
Millgrove	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
MumC2:						
Morley	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
MumD2:						
Morley	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.10
MvbC3:						
Morley	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
Mississinewa	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
					Wetness	0.50
MvbD3:						
Morley	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.10

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
MvbD3:						
Mississinewa--------	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Wetness	0.50
					Landslides	0.10
MvxA:						
Mountpleasant-------	Slight		Slight		Moderately suited	
					Strength	0.50
MvxB2:						
Mountpleasant-------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
MvxC2:						
Mountpleasant-------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
MwzAN:						
Muskego-------------	Very severe		Very severe		Poorly suited	
	High organic content	1.00	High organic content	1.00	Ponding	1.00
					Strength	1.00
					Wetness	0.50
MwzAU:						
Muskego-------------	Very severe		Very severe		Poorly suited	
	High organic content	1.00	High organic content	1.00	Ponding	1.00
					Strength	1.00
					Wetness	1.00
ObxA:						
Ockley--------------	Slight		Slight		Moderately suited	
					Strength	0.50
ObxB2:						
Ockley--------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
PgaA:						
Pella---------------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
PkkA:						
Pewamo--------------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
Pmg:						
Pits, gravel--------	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry--------	Not rated		Not rated		Not rated	

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
ReyA:						
Rensselaer----------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
RroAH:						
Ross----------------	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
Lash----------------	Slight		Slight		Poorly suited	
					Flooding	1.00
					Strength	0.50
RrwB:						
Rawson--------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
SgmAH:						
Shoals--------------	Slight		Slight		Poorly suited	
					Flooding	1.00
					Wetness	0.50
					Strength	0.50
SmsAH:						
Sloan---------------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	0.50
					Strength	0.50
SnlA:						
Southwest-----------	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
SvsE2:						
Strawn--------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
Belmore-------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
SvsG:						
Strawn--------------	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50
Belmore-------------	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Strength	0.50
					Landslides	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
ThrA:						
Treaty	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
Uam:						
Udorthents	Slight		Slight		Moderately suited	
					Strength	0.50
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
Treaty	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
Ucu:						
Udorthents	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Sandiness	0.50
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Slight		Slight		Moderately suited	
					Wetness	0.50
					Strength	0.50
Pewamo	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Wetness	0.50
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Slight		Slight		Poorly suited	
					Ponding	1.00
					Wetness	0.50
					Strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
UhaB:						
Urban land----------	Not rated		Not rated		Not rated	
Wawaka--------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
Miami---------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
W:						
Water---------------	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Wetness	0.50
WbgC3:						
Wapahani------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
					Slope	0.50
					Wetness	0.50
WdrA:						
Wawaka--------------	Slight		Slight		Moderately suited	
					Strength	0.50
WdrB2:						
Wawaka--------------	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Strength	0.50
WdrC2:						
Wawaka--------------	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
					Strength	0.50
WonA:						
Williamstown--------	Slight		Slight		Moderately suited	
					Strength	0.50

Table 10c.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
	Stickiness	0.75	Stickiness	0.75	Strength	0.50
BdlC2:						
Belmore-------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
BdmA:						
Belmore-------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
BdmB2:						
Belmore-------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
BdsAN:						
Benadum-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
					Strength	0.50
BdsAU:						
Benadum-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
					Strength	0.50
BltA:						
Blount--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
BmlA:						
Blount--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Del Rey-------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
CdgC3:						
Casco---------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
CudA:						
Crosby--------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
DdxA:						
Digby---------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
Haney---------------	Well suited		Well suited		Moderately suited	
					Strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
EdxA:						
Eldean	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
EdxB2:						
Eldean	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
EdxC2:						
Eldean	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Strength	0.50
			Stickiness	0.50		
EdxD2:						
Eldean	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Strength	0.50
			Stickiness	0.50		
EdxE2:						
Eldean	Moderately suited		Unsuited		Moderately suited	
	Stickiness	0.50	Slope	1.00	Strength	0.50
			Stickiness	0.50	Slope	0.50
FexB2:						
Fox	Well suited		Well suited		Moderately suited	
					Strength	0.50
FexC2:						
Fox	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
FgoB2:						
Fox	Well suited		Well suited		Moderately suited	
					Strength	0.50
Muncie	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
FgoC2:						
Fox	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
Muncie	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
FgrC3:						
Fox	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
Muncie	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
FgrD3:						
Fox	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Strength	0.50
Muncie	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Strength	0.50
			Stickiness	0.50		

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
GlnAH:						
Gessie	Well suited		Well suited		Moderately suited	
					Strength	0.50
Eel	Well suited		Well suited		Moderately suited	
					Strength	0.50
GlrB2:						
Glynwood	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
GlyB3:						
Glynwood	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Mississinewa	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
HtbAN:						
Houghton	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
HtbAU:						
Houghton	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
LdfAH:						
Lash	Well suited		Well suited		Moderately suited	
					Strength	0.50
LneAW:						
Lickcreek	Well suited		Well suited		Moderately suited	
					Strength	0.50
LshC3:						
Losantville	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
LshD3:						
Losantville	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
LteE:						
Lybrand	Moderately suited		Poorly suited		Moderately suited	
	Stickiness	0.50	Slope	0.75	Strength	0.50
			Stickiness	0.50	Slope	0.50
Belmore	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Strength	0.50
					Slope	0.50
LteG:						
Lybrand	Moderately suited		Unsuited		Poorly suited	
	Stickiness	0.50	Slope	1.00	Slope	1.00
	Slope	0.50	Stickiness	0.50	Strength	0.50
Belmore	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
					Strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
MecA:						
Martinsville--------	Well suited		Well suited		Moderately suited	
					Strength	0.50
MecB:						
Martinsville--------	Well suited		Well suited		Moderately suited	
					Strength	0.50
MmcB2:						
Miami---------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MmcC2:						
Miami---------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MoeB2:						
Miamian-------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MoeC2:						
Miamian-------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Strength	0.50
			Stickiness	0.50		
MorA:						
Milford-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
					Stickiness	0.50
MphA:						
Milford-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MprA:						
Milford-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MryA:						
Millgrove-----------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MumC2:						
Morley--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MumD2:						
Morley--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MvbC3:						
Morley--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
MvbC3:						
Mississinewa--------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MvbD3:						
Morley--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
Mississinewa--------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MvxA:						
Mountpleasant-------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MvxB2:						
Mountpleasant-------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
MvxC2:						
Mountpleasant-------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
MwzAN:						
Muskego-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Strength	1.00
					Wetness	1.00
MwzAU:						
Muskego-------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Strength	1.00
					Wetness	1.00
ObxA:						
Ockley--------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
ObxB2:						
Ockley--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
PgaA:						
Pella---------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
PkkA:						
Pewamo--------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Pmg:						
Pits, gravel--------	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry--------	Not rated		Not rated		Not rated	

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
ReyA:						
Rensselaer----------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
					Strength	0.50
RroAH:						
Ross----------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
Lash----------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
RrwB:						
Rawson--------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
SgmAH:						
Shoals--------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
SmsAH:						
Sloan---------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
					Strength	0.50
SnlA:						
Southwest-----------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
					Strength	0.50
SvsE2:						
Strawn--------------	Moderately suited		Poorly suited		Moderately suited	
	Stickiness	0.50	Slope	0.75	Strength	0.50
			Stickiness	0.50	Slope	0.50
Belmore-------------	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Strength	0.50
					Slope	0.50
SvsG:						
Strawn--------------	Moderately suited		Unsuited		Poorly suited	
	Stickiness	0.50	Slope	1.00	Slope	1.00
	Slope	0.50	Stickiness	0.50	Strength	0.50
Belmore-------------	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
					Strength	0.50
ThrA:						
Treaty--------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Uam:						
Udorthents----------	Well suited		Well suited		Moderately suited	
					Strength	0.50
UccA:						
Urban land----------	Not rated		Not rated		Not rated	

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UccA:						
Crosby--------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
Treaty--------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Ucu:						
Udorthents----------	Moderately suited		Moderately suited		Moderately suited	
	Sandiness	0.50	Rock fragments	0.50	Sandiness	0.50
			Sandiness	0.50		
UdmA:						
Urban land----------	Not rated		Not rated		Not rated	
Blount--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Pewamo--------------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
UemB:						
Urban land----------	Not rated		Not rated		Not rated	
Fox-----------------	Well suited		Well suited		Moderately suited	
					Strength	0.50
UetB:						
Urban land----------	Not rated		Not rated		Not rated	
Glynwood------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
UfuA:						
Urban land----------	Not rated		Not rated		Not rated	
Millgrove-----------	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	0.75
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
UhaB:						
Urban land----------	Not rated		Not rated		Not rated	
Wawaka--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
Miami---------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
W:						
Water---------------	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WbgC3:						
Wapahani------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
			Slope	0.50		
WdrA:						
Wawaka--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
WdrB2:						
Wawaka--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50
WdrC2:						
Wawaka--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Strength	0.50
			Stickiness	0.50		
WonA:						
Williamstown--------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Strength	0.50

Table 10d.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
BdhAH:		
Bellcreek	High	
	Wetness	1.00
BdlC2:		
Belmore	Low	
BdmA:		
Belmore	Low	
BdmB2:		
Belmore	Low	
BdsAN:		
Benadum	High	
	Wetness	1.00
BdsAU:		
Benadum	High	
	Wetness	1.00
BltA:		
Blount	High	
	Wetness	1.00
BmlA:		
Blount	High	
	Wetness	1.00
Del Rey	High	
	Wetness	1.00
CdgC3:		
Casco	Low	
CudA:		
Crosby	High	
	Wetness	1.00
DdxA:		
Digby	High	
	Wetness	1.00
Haney	Moderate	
	Wetness	0.50
EdxA:		
Eldean	Low	
EdxB2:		
Eldean	Low	

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality	
	Rating class and limiting features	Value
EdxC2:		
Eldean	Low	
EdxD2:		
Eldean	Low	
EdxE2:		
Eldean	Low	
FexB2:		
Fox	Low	
FexC2:		
Fox	Low	
FgoB2:		
Fox	Low	
Muncie	Low	
FgoC2:		
Fox	Low	
Muncie	Low	
FgrC3:		
Fox	Low	
Muncie	Low	
FgrD3:		
Fox	Low	
Muncie	Low	
GlnAH:		
Gessie	Moderate	
	Lime	0.50
	Soil reaction	0.50
Eel	Low	
GlrB2:		
Glynwood	Low	
GlyB3:		
Glynwood	High	
	Wetness	1.00
Mississinewa	High	
	Wetness	1.00
HtbAN:		
Houghton	High	
	Wetness	1.00
	Soil reaction	1.00
HtbAU:		
Houghton	High	
	Wetness	1.00
	Soil reaction	1.00

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Value
LdfAH:		
Lash	Moderate	
	Soil reaction	0.50
LneAW:		
Lickcreek	Low	
LshC3:		
Losantville	Low	
LshD3:		
Losantville	Low	
LteE:		
Lybrand	Low	
Belmore	Low	
LteG:		
Lybrand	Low	
Belmore	Low	
MecA:		
Martinsville	Low	
MecB:		
Martinsville	Low	
MmcB2:		
Miami	Low	
MmcC2:		
Miami	Low	
MoeB2:		
Miamian	Low	
MoeC2:		
Miamian	Low	
MorA:		
Milford	High	
	Wetness	1.00
MphA:		
Milford	High	
	Wetness	1.00
MprA:		
Milford	High	
	Wetness	1.00
MryA:		
Millgrove	High	
	Wetness	1.00
MumC2:		
Morley	Low	

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality	
	Rating class and limiting features	Value
MumD2:		
Morley	Low	
MvbC3:		
Morley	Low	
Mississinewa	High	
	Wetness	1.00
MvbD3:		
Morley	Low	
Mississinewa	High	
	Wetness	1.00
MvxA:		
Mountpleasant	Low	
MvxB2:		
Mountpleasant	Low	
MvxC2:		
Mountpleasant	Low	
MwzAN:		
Muskego	High	
	Wetness	1.00
	Soil reaction	1.00
MwzAU:		
Muskego	High	
	Wetness	1.00
	Soil reaction	1.00
ObxA:		
Ockley	Low	
ObxB2:		
Ockley	Low	
PgaA:		
Pella	High	
	Wetness	1.00
PkkA:		
Pewamo	High	
	Wetness	1.00
Pmg:		
Pits, gravel	Not rated	
Pml:		
Pits, quarry	Not rated	
ReyA:		
Rensselaer	High	
	Wetness	1.00
RroAH:		
Ross	Low	

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Value
RroAH:		
Lash	Moderate	
	Soil reaction	0.50
RrwB:		
Rawson	Low	
SgmAH:		
Shoals	High	
	Wetness	1.00
SmsAH:		
Sloan	High	
	Wetness	1.00
SnlA:		
Southwest	High	
	Wetness	1.00
SvsE2:		
Strawn	Low	
Belmore	Low	
SvsG:		
Strawn	Low	
Belmore	Low	
ThrA:		
Treaty	High	
	Wetness	1.00
Uam:		
Udorthents	Low	
UccA:		
Urban land	Not rated	
Crosby	High	
	Wetness	1.00
Treaty	High	
	Wetness	1.00
Ucu:		
Udorthents	Moderate	
	Lime	0.50
UdmA:		
Urban land	Not rated	
Blount	High	
	Wetness	1.00
Pewamo	High	
	Wetness	1.00
UemB:		
Urban land	Not rated	

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Value
UemB:		
Fox	Low	
UetB:		
Urban land	Not rated	
Glynwood	Low	
UfuA:		
Urban land	Not rated	
Millgrove	High	
	Wetness	1.00
UhaB:		
Urban land	Not rated	
Wawaka	Low	
Miami	Low	
W:		
Water	Not rated	
WbgB3:		
Wapahani	Low	
WbgC3:		
Wapahani	Low	
WdrA:		
Wawaka	Low	
WdrB2:		
Wawaka	Low	
WdrC2:		
Wawaka	Low	
WonA:		
Williamstown	Low	

Table 11a.--Recreation

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
BdlC2:						
Belmore	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
BdmA:						
Belmore	Not limited		Not limited		Not limited	
BdmB2:						
Belmore	Not limited		Not limited		Somewhat limited	
					Slope	0.12
BdsAN:						
Benadum	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
BdsAU:						
Benadum	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
BltA:						
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
BmlA:						
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Del Rey	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
CdgC3:						
Casco----------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Gravel content	0.05
CudA:						
Crosby---------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
DdxA:						
Digby----------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Haney----------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EdxA:						
Eldean---------------	Not limited		Not limited		Not limited	
EdxB2:						
Eldean---------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
EdxC2:						
Eldean---------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
EdxD2:						
Eldean---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
EdxE2:						
Eldean---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
FexB2:						
Fox------------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
FexC2:						
Fox------------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
FgoB2:						
Fox------------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
Muncie---------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
FgoC2:						
Fox------------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
FgoC2:						
Muncie	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
FgrC3:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Muncie	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
FgrD3:						
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Muncie	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
GlnAH:						
Gessie	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
Eel	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
GlrB2:						
Glynwood	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Restricted permeability	0.96	Depth to saturated zone	0.98
	Restricted permeability	0.96	Depth to saturated zone	0.75	Restricted permeability	0.96
					Slope	0.12
GlyB3:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Slope	0.50
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
HtbAN:						
Houghton------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Ponding	1.00
HtbAU:						
Houghton------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Ponding	1.00
LdfAH:						
Lash----------------	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
LneAW:						
Lickcreek-----------	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
LshC3:						
Losantville---------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Depth to saturated zone	0.98
					Restricted permeability	0.21
LshD3:						
Losantville---------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Slope	0.84	Slope	1.00
	Slope	0.84	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
LteE:						
Lybrand-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
LteG:						
Lybrand-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
MecA:						
Martinsville--------	Not limited		Not limited		Not limited	

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
MecB:						
Martinsville	Not limited		Not limited		Somewhat limited	
					Slope	0.50
MmcB2:						
Miami	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
MmcC2:						
Miami	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
MoeB2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
					Slope	0.12
MoeC2:						
Miamian	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
					Restricted permeability	0.21
MorA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MphA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MprA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MryA:						
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
MumC2:						
Morley--------------	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Slope	1.00
					Restricted permeability	1.00
MumD2:						
Morley--------------	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Slope	1.00
	Slope	0.84	Slope	0.84	Restricted permeability	1.00
MvbC3:						
Morley--------------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.39	Restricted permeability	0.21	Slope	1.00
	Restricted permeability	0.21	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Restricted permeability	0.21
Mississinewa--------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
					Restricted permeability	0.21
MvbD3:						
Morley--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.84	Slope	0.84	Slope	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.21	Depth to saturated zone	0.39
	Restricted permeability	0.21	Depth to saturated zone	0.19	Restricted permeability	0.21
Mississinewa--------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.84	Slope	0.84	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MvxA:						
Mountpleasant-------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MvxB2:						
Mountpleasant-------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
MvxC2:						
Mountpleasant-------	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
MwzAN:						
Muskego	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
MwzAU:						
Muskego	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
ObxA:						
Ockley	Not limited		Not limited		Not limited	
ObxB2:						
Ockley	Not limited		Not limited		Somewhat limited	
					Slope	0.50
PgaA:						
Pella	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
PkkA:						
Pewamo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Pmg:						
Pits, gravel	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
RroAH:						
Ross	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
Lash	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
RrwB:						
Rawson	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
					Slope	0.12

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
SgmAH:						
Shoals	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.40	Flooding	1.00
SmsAH:						
Sloan	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
SnlA:						
Southwest	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
SvsE2:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
SvsG:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
ThrA:						
Treaty	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Uam:						
Udorthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Treaty	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
Ucu:						
Udorthents	Very limited		Very limited		Very limited	
	Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
	Too sandy	0.88	Too sandy	0.88	Too sandy	0.88
					Slope	0.12
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Pewamo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Not limited		Not limited		Somewhat limited	
					Slope	0.50
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Restricted permeability	0.96	Depth to saturated zone	0.98
	Restricted permeability	0.96	Depth to saturated zone	0.75	Restricted permeability	0.96
					Slope	0.50
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
Miami	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
					Slope	0.12
WbgC3:						
Wapahani	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Depth to saturated zone	0.98
					Restricted permeability	0.21
WdrA:						
Wawaka	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
WdrB2:						
Wawaka	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
WdrC2:						
Wawaka	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
WonA:						
Williamstown	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 11b.--Recreation

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
BdlC2:						
Belmore-------------	Not limited		Not limited		Somewhat limited	
					Slope	0.04
BdmA:						
Belmore-------------	Not limited		Not limited		Not limited	
BdmB2:						
Belmore-------------	Not limited		Not limited		Not limited	
BdsAN:						
Benadum-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
BdsAU:						
Benadum-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
BltA:						
Blount--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BmlA:						
Blount--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Del Rey-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CdgC3:						
Casco---------------	Not limited		Not limited		Somewhat limited	
					Droughty	0.75
					Slope	0.37
CudA:						
Crosby--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
DdxA:						
Digby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Haney	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EdxA:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
EdxB2:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
EdxC2:						
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Carbonate content	1.00
					Slope	0.04
EdxD2:						
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
					Carbonate content	1.00
EdxE2:						
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.04	Carbonate content	1.00
FexB2:						
Fox	Not limited		Not limited		Not limited	
FexC2:						
Fox	Not limited		Not limited		Somewhat limited	
					Slope	0.04
FgoB2:						
Fox	Not limited		Not limited		Not limited	
Muncie	Not limited		Not limited		Not limited	
FgoC2:						
Fox	Not limited		Not limited		Somewhat limited	
					Slope	0.04
Muncie	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
FgrC3:						
Fox	Not limited		Not limited		Somewhat limited	
					Slope	0.04
					Droughty	0.04
Muncie	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
FgrD3:						
Fox	Not limited		Not limited		Very limited	
					Slope	1.00
					Droughty	0.04
Muncie	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
GlnAH:						
Gessie	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
Eel	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
GlrB2:						
Glynwood	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
GlyB3:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	0.37
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	1.00
HtbAN:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
HtbAU:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
LdfAH:						
Lash	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
LneAW:						
Lickcreek	Not limited		Not limited		Somewhat limited	
					Flooding	0.60

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
LshC3:						
Losantville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Droughty	0.95
					Depth to saturated zone	0.75
LshD3:						
Losantville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Droughty	0.95
					Slope	0.84
					Depth to saturated zone	0.75
LteE:						
Lybrand	Somewhat limited		Not limited		Very limited	
	Slope	0.92			Slope	1.00
Belmore	Somewhat limited		Not limited		Very limited	
	Slope	0.92			Slope	1.00
LteG:						
Lybrand	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
MecA:						
Martinsville	Not limited		Not limited		Not limited	
MecB:						
Martinsville	Not limited		Not limited		Not limited	
MmcB2:						
Miami	Not limited		Not limited		Not limited	
MmcC2:						
Miami	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
MoeB2:						
Miamian	Not limited		Not limited		Not limited	
MoeC2:						
Miamian	Not limited		Not limited		Not limited	
MorA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
MphA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
MprA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
MryA:						
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
MumC2:						
Morley	Not limited		Not limited		Not limited	
MumD2:						
Morley	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.84
MvbC3:						
Morley	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.19
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	1.00
MvbD3:						
Morley	Not limited		Not limited		Somewhat limited	
					Slope	0.84
					Depth to saturated zone	0.19
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	1.00
					Slope	0.84
MvxA:						
Mountpleasant	Not limited		Not limited		Not limited	
MvxB2:						
Mountpleasant	Not limited		Not limited		Not limited	
MvxC2:						
Mountpleasant	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
MwzAN:						
Muskego	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MwzAU:						
Muskego	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
ObxA:						
Ockley	Not limited		Not limited		Not limited	
ObxB2:						
Ockley	Not limited		Not limited		Not limited	
PgaA:						
Pella	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
PkkA:						
Pewamo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Pmg:						
Pits, gravel	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
RroAH:						
Ross	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
Lash	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
RrwB:						
Rawson	Not limited		Not limited		Not limited	
SgmAH:						
Shoals	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
SmsAH:						
Sloan	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
SnlA:						
Southwest	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
SvsE2:						
Strawn	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.92				
Belmore	Somewhat limited		Not limited		Very limited	
	Slope	0.92			Slope	1.00
SvsG:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00		
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
ThrA:						
Treaty	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Uam:						
Udorthents	Not limited		Not limited		Somewhat limited	
					Droughty	0.09
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Treaty	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Ucu:						
Udorthents	Somewhat limited		Somewhat limited		Very limited	
	Too sandy	0.88	Too sandy	0.88	Droughty	1.00
					Gravel content	1.00
					Too sandy	0.50
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Pewamo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Not limited		Not limited		Not limited	
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Not limited		Not limited		Not limited	
Miami	Not limited		Not limited		Not limited	
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Droughty	0.79
					Depth to saturated zone	0.75
WbgC3:						
Wapahani	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Droughty	0.79
					Depth to saturated zone	0.75
WdrA:						
Wawaka	Not limited		Not limited		Not limited	
WdrB2:						
Wawaka	Not limited		Not limited		Not limited	
WdrC2:						
Wawaka	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
WonA:						
Williamstown	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75

Table 12.--Wildlife Habitat

[See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
BdhAH:										
Bellcreek	Fair	Fair	Poor	Poor	Poor	Good	Good	Fair	Poor	Good.
BdlC2:										
Belmore	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BdmA:										
Belmore	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BdmB2:										
Belmore	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BdsAN:										
Benadum	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
BdsAU:										
Benadum	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
BltA:										
Blount	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
BmlA:										
Blount	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Del Rey	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
CdgC3:										
Casco	Fair	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CudA:										
Crosby	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
DdxA:										
Digby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Haney	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
EdxA:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EdxB2:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EdxC2:										
Eldean	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EdxD2:										
Eldean	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
EdxE2:										
Eldean	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
FexB2:										
Fox	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FexC2:										
Fox	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
FgoB2:										
Fox	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Muncie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FgoC2:										
Fox	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Muncie	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FgrC3:										
Fox	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Muncie	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FgrD3:										
Fox	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Muncie	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
GlnAH:										
Gessie	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Eel	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
GlrB2:										
Glynwood	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
GlyB3:										
Glynwood	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Mississinewa	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Poor.
HtbAN:										
Houghton	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
HtbAU:										
Houghton	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
LdfAH:										
Lash----------	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
LneAW:										
Lickcreek-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LshC3:										
Losantville---	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LshD3:										
Losantville---	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LteE:										
Lybrand-------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Belmore-------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
LteG:										
Lybrand-------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Belmore-------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
MecA:										
Martinsville--	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MecB:										
Martinsville--	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MmcB2:										
Miami---------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MmcC2:										
Miami---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MoeB2:										
Miamian-------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MoeC2:										
Miamian-------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MorA:										
Milford-------	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
MphA:										
Milford-------	Good	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MprA: Milford	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
MryA: Millgrove	Fair	Fair	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
MumC2: Morley	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MumD2: Morley	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MvbC3: Morley	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Mississinewa	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Poor.
MvbD3: Morley	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Mississinewa	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Poor.
MvxA: Mountpleasant	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MvxB2: Mountpleasant	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MvxC2: Mountpleasant	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MwzAN: Muskego	Good	Fair	Poor	Poor	Poor	Good	Good	Fair	Poor	Good.
MwzAU: Muskego	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
ObxA: Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ObxB2: Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PgaA: Pella	Good	Good	Good	Fair	Fair	Good	Good	Good	Fair	Good.
PkkA: Pewamo	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Pmg: Pits, gravel.										

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Pml: Pits, quarry.										
ReyA: Rensselaer	Fair	Poor	Poor	Fair	Fair	Good	Good	Fair	Fair	Good.
RroAH: Ross	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Lash	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
RrwB: Rawson	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SgmAH: Shoals	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
SmsAH: Sloan	Fair	Fair	Fair	Poor	Poor	Good	Good	Fair	Poor	Good.
SnlA: Southwest	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
SvsE2: Strawn	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Belmore	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SvsG: Strawn	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Belmore	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
ThrA: Treaty	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Uam: Udorthents	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
UccA: Urban land.										
Crosby	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Treaty	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Ucu: Udorthents	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
UdmA: Urban land.										

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
UdmA:										
Blount--------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Pewamo--------	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
UemB:										
Urban land.										
Fox-----------	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
UetB:										
Urban land.										
Glynwood------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UfuA:										
Urban land.										
Millgrove-----	Fair	Fair	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
UhaB:										
Urban land.										
Wawaka--------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Miami---------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
W:										
Water.										
WbgB3:										
Wapahani------	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Poor.
WbgC3:										
Wapahani------	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
WdrA:										
Wawaka--------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WdrB2:										
Wawaka--------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WdrC2:										
Wawaka--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WonA:										
Williamstown--	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

Table 13a.--Building Site Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
BdhAH:						
Bellcreek	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
BdlC2:						
Belmore	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
BdmA:						
Belmore	Not limited		Not limited		Not limited	
BdmB2:						
Belmore	Not limited		Not limited		Not limited	
BdsAN:						
Benadum	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
			Shrink-swell	0.50		
BdsAU:						
Benadum	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
			Shrink-swell	0.50		
BltA:						
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
BmlA:						
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
Del Rey	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.06	Shrink-swell	0.50

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
CdgC3:						
Casco	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.37	Slope	0.37	Shrink-swell	0.50
CudA:						
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
DdxA:						
Digby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Haney	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EdxA:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
EdxB2:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
EdxC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.94	Shrink-swell	0.94	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.94
EdxD2:						
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
EdxE2:						
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
FexB2:						
Fox	Not limited		Not limited		Not limited	
FexC2:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
FgoB2:						
Fox	Not limited		Not limited		Not limited	
Muncie	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
FgoC2:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
FgoC2:						
Muncie	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.94	Shrink-swell	0.94	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.94
FgrC3:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.06
Muncie	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
FgrD3:						
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
Muncie	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
GlnAH:						
Gessie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
Eel	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
GlrB2:						
Glynwood	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
GlyB3:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
HtbAN:						
Houghton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
HtbAU:						
Houghton------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
LdfAH:						
Lash----------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
LneAW:						
Lickcreek-----------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
LshC3:						
Losantville---------	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Depth to saturated zone	0.98
					Shrink-swell	0.94
LshD3:						
Losantville---------	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Depth to saturated zone	0.98
	Slope	0.84	Slope	0.84	Shrink-swell	0.94
LteE:						
Lybrand-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
			Depth to saturated zone	0.82		
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
LteG:						
Lybrand-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
			Depth to saturated zone	0.82		
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
MecA:						
Martinsville--------	Not limited		Not limited		Not limited	
MecB:						
Martinsville--------	Not limited		Not limited		Not limited	

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
MmcB2:						
Miami---------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
MmcC2:						
Miami---------------	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
MoeB2:						
Miamian-------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Shrink-swell	0.94
			Shrink-swell	0.94		
MoeC2:						
Miamian-------------	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Slope	1.00
					Shrink-swell	0.94
			Shrink-swell	0.94		
MorA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
MphA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94			Shrink-swell	0.94
MprA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
MryA:						
Millgrove-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
MumC2:						
Morley--------------	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Slope	1.00
					Shrink-swell	0.94
			Shrink-swell	0.94		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
MumD2:						
Morley	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.84	Shrink-swell	0.94	Shrink-swell	0.94
			Slope	0.84		
MvbC3:						
Morley	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.39	Shrink-swell	0.94	Shrink-swell	0.94
					Depth to saturated zone	0.39
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
					Shrink-swell	0.50
MvbD3:						
Morley	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.94	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.84	Shrink-swell	0.94	Shrink-swell	0.94
	Depth to saturated zone	0.39	Slope	0.84	Depth to saturated zone	0.39
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.84	Slope	0.84	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MvxA:						
Mountpleasant	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
MvxB2:						
Mountpleasant	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
MvxC2:						
Mountpleasant	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.06
MwzAN:						
Muskego	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
			Shrink-swell	0.50		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
MwzAU:						
Muskego----------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
			Shrink-swell	0.50		
ObxA:						
Ockley-----------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
ObxB2:						
Ockley-----------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
PgaA:						
Pella------------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
PkkA:						
Pewamo-----------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
Pmg:						
Pits, gravel-----------	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry-----------	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.06			Shrink-swell	0.06
RroAH:						
Ross-------------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.16		
Lash-------------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
RrwB:						
Rawson-----------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.06	Depth to saturated zone	1.00	Shrink-swell	0.06
			Shrink-swell	0.06		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
SgmAH:						
Shoals	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SmsAH:						
Sloan	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.06			Shrink-swell	0.06
SnlA:						
Southwest	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
SvsE2:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
SvsG:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
ThrA:						
Treaty	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
Uam:						
Udorthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.06	Depth to saturated zone	0.47	Shrink-swell	0.06
			Shrink-swell	0.06		
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Treaty	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Ucu:						
Udorthents	Not limited		Not limited		Not limited	
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
Pewamo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Not limited		Not limited		Not limited	
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.94	Shrink-swell	0.94	Shrink-swell	0.94
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
Miami	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
WbgC3:						
Wapahani------------	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.06	Shrink-swell	0.06	Depth to saturated zone	0.98
					Shrink-swell	0.06
WdrA:						
Wawaka--------------	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
WdrB2:						
Wawaka--------------	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
WdrC2:						
Wawaka--------------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Slope	0.04	Slope	1.00
	Slope	0.04			Shrink-swell	0.50
WonA:						
Williamstown--------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13b.--Building Site Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00	Too clayey	0.03		
BdlC2:						
Belmore------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.04	Cutbanks cave	1.00	Slope	0.04
			Slope	0.04		
BdmA:						
Belmore------------	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
BdmB2:						
Belmore------------	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
BdsAN:						
Benadum------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Content of organic matter	1.00		
			Cutbanks cave	0.10		
BdsAU:						
Benadum------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Content of organic matter	1.00		
			Cutbanks cave	0.10		
BltA:						
Blount-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.94	Too clayey	0.02		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
BmlA:						
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.94	Too clayey	0.02		
Del Rey	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
CdgC3:						
Casco	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Droughty	0.75
	Slope	0.37	Dense layer	0.50	Slope	0.37
			Slope	0.37		
CudA:						
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
DdxA:						
Digby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
Haney	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
EdxA:						
Eldean	Very limited		Very limited		Very limited	
	Low strength	1.00	Cutbanks cave	1.00	Carbonate content	1.00
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Too clayey	0.02		
EdxB2:						
Eldean	Very limited		Very limited		Very limited	
	Low strength	1.00	Cutbanks cave	1.00	Carbonate content	1.00
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Too clayey	0.02		
EdxC2:						
Eldean	Very limited		Very limited		Very limited	
	Low strength	1.00	Cutbanks cave	1.00	Carbonate content	1.00
	Shrink-swell	0.94	Dense layer	0.50	Slope	0.04
	Frost action	0.50	Slope	0.04		
	Slope	0.04	Too clayey	0.02		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
EdxD2:						
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Low strength	1.00	Slope	1.00	Carbonate content	1.00
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Too clayey	0.02		
EdxE2:						
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00	Carbonate content	1.00
			Dense layer	0.50		
			Too clayey	0.02		
FexB2:						
Fox	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
			Dense layer	0.50		
FexC2:						
Fox	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
	Slope	0.04	Dense layer	0.50		
			Slope	0.04		
FgoB2:						
Fox	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
			Dense layer	0.50		
Muncie	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50				
FgoC2:						
Fox	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
	Slope	0.04	Dense layer	0.50		
			Slope	0.04		
Muncie	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Cutbanks cave	1.00	Slope	0.04
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Slope	0.04		
	Slope	0.04				
FgrC3:						
Fox	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
	Shrink-swell	0.06	Dense layer	0.50	Droughty	0.04
	Slope	0.04	Slope	0.04		
Muncie	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Cutbanks cave	1.00	Slope	0.04
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50	Slope	0.04		
	Slope	0.04				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
FgrD3:						
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Frost action	0.50	Slope	1.00	Droughty	0.04
	Shrink-swell	0.06	Dense layer	0.50		
Muncie	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Low strength	1.00	Slope	1.00		
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50				
GlnAH:						
Gessie	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
Eel	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Low strength	1.00			Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Cutbanks cave	1.00		
			Flooding	0.80		
	Frost action	0.50				
GlrB2:						
Glynwood	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00				
	Shrink-swell	0.94	Dense layer	0.50		
	Depth to saturated zone	0.75	Too clayey	0.12		
			Cutbanks cave	0.10		
GlyB3:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50	Droughty	0.37
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.94				
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Dense layer	0.50	Droughty	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
HtbAN:						
Houghton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
			Cutbanks cave	0.10		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
HtbAU:						
Houghton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
LdfAH:						
Lash	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
LneAW:						
Lickcreek	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
	Frost action	0.50	Flooding	0.60		
LshC3:						
Losantville	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Droughty	0.95
	Shrink-swell	0.94	Dense layer	0.50	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Frost action	0.50				
LshD3:						
Losantville	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Droughty	0.95
	Shrink-swell	0.94	Slope	0.84	Slope	0.84
	Slope	0.84	Dense layer	0.50	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Frost action	0.50				
LteE:						
Lybrand	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Depth to saturated zone	0.82		
	Shrink-swell	0.94	Cutbanks cave	0.10		
	Frost action	0.50	Too clayey	0.02		
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		
LteG:						
Lybrand	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Depth to saturated zone	0.82		
	Shrink-swell	0.94	Cutbanks cave	0.10		
	Frost action	0.50	Too clayey	0.02		
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
MecA:						
Martinsville--------	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
	Low strength	0.22				
MecB:						
Martinsville--------	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
	Low strength	0.22				
MmcB2:						
Miami---------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
MmcC2:						
Miami---------------	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.04
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.04	Slope	0.04		
MoeB2:						
Miamian-------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
MoeC2:						
Miamian-------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
MorA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10	Too clayey	1.00
	Low strength	1.00				
	Shrink-swell	0.50				
MphA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.94				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
MprA:						
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.94				
MryA:						
Millgrove-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	0.78				
	Shrink-swell	0.50				
MumC2:						
Morley--------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
			Too clayey	0.02		
MumD2:						
Morley--------------	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.84
	Shrink-swell	0.94	Slope	0.84		
	Slope	0.84	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
			Too clayey	0.02		
MvbC3:						
Morley--------------	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Shrink-swell	0.94	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.19	Too clayey	0.02		
Mississinewa--------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Dense layer	0.50	Droughty	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
MvbD3:						
Morley--------------	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.84
	Shrink-swell	0.94	Slope	0.84	Depth to saturated zone	0.19
	Slope	0.84	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.19	Too clayey	0.02		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
MvbD3:						
Mississinewa--------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Slope	0.84	Droughty	1.00
	Slope	0.84	Dense layer	0.50	Slope	0.84
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
MvxA:						
Mountpleasant-------	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Shrink-swell	0.06				
MvxB2:						
Mountpleasant-------	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Shrink-swell	0.06				
MvxC2:						
Mountpleasant-------	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Dense layer	0.50	Slope	0.04
	Frost action	0.50	Cutbanks cave	0.10		
	Shrink-swell	0.06	Slope	0.04		
	Slope	0.04				
MwzAN:						
Muskego-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00		
	Frost action	1.00	Cutbanks cave	0.10		
MwzAU:						
Muskego-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00		
	Frost action	1.00	Cutbanks cave	0.10		
ObxA:						
Ockley--------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Frost action	0.50	Dense layer	0.50		
	Shrink-swell	0.06				
ObxB2:						
Ockley--------------	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Frost action	0.50	Dense layer	0.50		
	Shrink-swell	0.06				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
PgaA:						
Pella----------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
PkkA:						
Pewamo---------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.03		
	Shrink-swell	0.94				
Pmg:						
Pits, gravel---------	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry---------	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.06				
RroAH:						
Ross-----------------	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Depth to saturated zone	0.16		
			Cutbanks cave	0.10		
Lash-----------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
RrwB:						
Rawson---------------	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Depth to saturated zone	1.00		
	Shrink-swell	0.06	Dense layer	0.50		
			Cutbanks cave	0.10		
SgmAH:						
Shoals---------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SmsAH:						
Sloan	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
SnlA:						
Southwest	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.06				
SvsE2:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10		
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		
SvsG:						
Strawn	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10		
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		
ThrA:						
Treaty	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Uam:						
Udorthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	0.47	Droughty	0.09
	Shrink-swell	0.06	Cutbanks cave	0.10		
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
UccA:						
Treaty	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Ucu:						
Udorthents	Not limited		Very limited		Very limited	
			Cutbanks cave	1.00	Droughty	1.00
			Dense layer	0.50	Gravel content	1.00
					Too sandy	0.50
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.94	Too clayey	0.02		
Pewamo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.03		
	Shrink-swell	0.94				
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
			Dense layer	0.50		
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Dense layer	0.50		
	Shrink-swell	0.94	Too clayey	0.12		
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	0.78				
	Shrink-swell	0.50				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50				
Miami	Very limited		Very limited		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.50				
	Frost action	0.50	Dense layer	0.50		
			Cutbanks cave	0.10		
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Droughty	0.79
	Depth to saturated zone	0.75			Depth to saturated zone	0.75
			Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Shrink-swell	0.06				
WbgC3:						
Wapahani	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Droughty	0.79
	Depth to saturated zone	0.75			Depth to saturated zone	0.75
			Dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Shrink-swell	0.06				
WdrA:						
Wawaka	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50				
WdrB2:						
Wawaka	Very limited		Very limited		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50				
WdrC2:						
Wawaka	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Cutbanks cave	1.00	Slope	0.04
	Shrink-swell	0.50	Dense layer	0.50		
	Frost action	0.50	Slope	0.04		
	Slope	0.04				
WonA:						
Williamstown	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.75				
			Dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				

Table 14a.--Sanitary Facilities

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:				
Bellcreek-----------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
BdlC2:				
Belmore-------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Slope	0.04		
BdmA:				
Belmore-------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
BdmB2:				
Belmore-------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
BdsAN:				
Benadum-------------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
			Seepage	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
			Content of organic matter	1.00
BdsAU:				
Benadum-------------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
			Seepage	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
			Content of organic matter	1.00
BltA:				
Blount--------------	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
BmlA:				
Blount	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Del Rey	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
CdgC3:				
Casco	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
CudA:				
Crosby	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
DdxA:				
Digby	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
Haney	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
EdxA:				
Eldean	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.72		
EdxB2:				
Eldean	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
EdxC2:				
Eldean	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.04		
EdxD2:				
Eldean	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46		
EdxE2:				
Eldean	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46		
FexB2:				
Fox	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
FexC2:				
Fox	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.04		
FgoB2:				
Fox	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
Muncie	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	1.00	Slope	0.32
FgoC2:				
Fox	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.04		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
FgoC2:				
Muncie--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04		
FgrC3:				
Fox-----------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Muncie--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04		
FgrD3:				
Fox-----------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Muncie--------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
	Slope	1.00		
GlnAH:				
Gessie--------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	1.00
Eel-----------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
GlrB2:				
Glynwood------------	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
GlyB3:				
Glynwood------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.32

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
GlyB3:				
Mississinewa--------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.32
HtbAN:				
Houghton------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
HtbAU:				
Houghton------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
LdfAH:				
Lash----------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
LneAW:				
Lickcreek-----------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
LshC3:				
Losantville---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Depth to saturated zone	1.00
LshD3:				
Losantville---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.84	Depth to saturated zone	1.00
LteE:				
Lybrand-------------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
	Slope	1.00		
Belmore-------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
LteG:				
Lybrand-------------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
	Slope	1.00		
Belmore-------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00		
MecA:				
Martinsville--------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
MecB:				
Martinsville--------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
MmcB2:				
Miami---------------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.32
	Restricted permeability	1.00	Depth to saturated zone	0.19
MmcC2:				
Miami---------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
	Restricted permeability	1.00	Depth to saturated zone	0.19
	Slope	0.04		
MoeB2:				
Miamian-------------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Restricted permeability	1.00	Slope	0.08
MoeC2:				
Miamian-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Depth to saturated zone	0.19
	Restricted permeability	1.00		
MorA:				
Milford-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
MphA:				
Milford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
MprA:				
Milford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
MryA:				
Millgrove	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46	Depth to saturated zone	1.00
MumC2:				
Morley	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.19
MumD2:				
Morley	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Slope	0.84		
MvbC3:				
Morley	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.75
Mississinewa	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	1.00
MvbD3:				
Morley	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.75
	Slope	0.84		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
MvbD3:				
Mississinewa--------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.84	Depth to saturated zone	1.00
MvxA:				
Mountpleasant-------	Very limited		Not limited	
	Filtering capacity	1.00		
	Restricted permeability	1.00		
MvxB2:				
Mountpleasant-------	Very limited		Somewhat limited	
	Filtering capacity	1.00	Slope	0.32
	Restricted permeability	1.00		
MvxC2:				
Mountpleasant-------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Restricted permeability	1.00		
	Slope	0.04		
MwzAN:				
Muskego-------------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Content of organic matter	1.00
MwzAU:				
Muskego-------------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Content of organic matter	1.00
ObxA:				
Ockley--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
ObxB2:				
Ockley--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
PgaA:				
Pella	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
PkkA:				
Pewamo	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
Pmg:				
Pits, gravel	Not rated		Not rated	
Pml:				
Pits, quarry	Not rated		Not rated	
ReyA:				
Rensselaer	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
RroAH:				
Ross	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	1.00
	Depth to saturated zone	0.43		
Lash	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
RrwB:				
Rawson	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Depth to saturated zone	0.19
			Slope	0.08
SgmAH:				
Shoals	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SmsAH:				
Sloan	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	0.53
SnlA:				
Southwest	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
SvsE2:				
Strawn	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Belmore	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
SvsG:				
Strawn	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Belmore	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
ThrA:				
Treaty	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
Uam:				
Udorthents	Very limited		Not limited	
	Restricted permeability	1.00		
	Depth to saturated zone	0.94		
UccA:				
Urban land	Not rated		Not rated	

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
UccA:				
Crosby--------------	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
Treaty--------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
Ucu:				
Udorthents----------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
	Seepage	1.00		
UdmA:				
Urban land----------	Not rated		Not rated	
Blount--------------	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Pewamo--------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
UemB:				
Urban land----------	Not rated		Not rated	
Fox-----------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
UetB:				
Urban land----------	Not rated		Not rated	
Glynwood------------	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.32
UfuA:				
Urban land----------	Not rated		Not rated	

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
UfuA:				
Millgrove	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46	Depth to saturated zone	1.00
UhaB:				
Urban land	Not rated		Not rated	
Wawaka	Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.32
UhaB:				
Miami	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.32
			Depth to saturated zone	0.19
W:				
Water	Not rated		Not rated	
WbgB3:				
Wapahani	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.08
WbgC3:				
Wapahani	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Depth to saturated zone	1.00
WdrA:				
Wawaka	Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	0.53
	Restricted permeability	1.00		
WdrB2:				
Wawaka	Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.32
WdrC2:				
Wawaka	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
	Slope	0.04		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
WonA:				
Williamstown--------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53

Table 14b.--Sanitary Facilities

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
BdlC2:						
Belmore-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	0.04	Slope	0.04
					Gravel content	0.01
BdmA:						
Belmore-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
BdmB2:						
Belmore-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
BdsAN:						
Benadum-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Hard to compact	1.00
BdsAU:						
Benadum-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Hard to compact	1.00
BltA:						
Blount--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
BmlA:						
Blount--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BmlA:						
Del Rey	Very limited Depth to saturated zone Too clayey	 1.00 0.50	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Too clayey	 1.00 0.50
CdgC3:						
Casco	Very limited Seepage Too clayey Slope	 1.00 0.50 0.37	Very limited Seepage Slope	 1.00 0.37	Somewhat limited Too clayey Slope	 0.50 0.37
CudA:						
Crosby	Very limited Depth to saturated zone Too clayey	 1.00 0.50	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Too clayey	 1.00 0.50
DdxA:						
Digby	Very limited Depth to saturated zone Seepage	 1.00 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Seepage Gravel content	 1.00 1.00 0.01
Haney	Very limited Depth to saturated zone Seepage	 1.00 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Seepage Too clayey	 1.00 1.00 0.50
EdxA:						
Eldean	Very limited Seepage Too clayey	 1.00 1.00	Very limited Seepage	 1.00	Very limited Too clayey	 1.00
EdxB2:						
Eldean	Very limited Seepage Too clayey	 1.00 1.00	Very limited Seepage	 1.00	Very limited Too clayey	 1.00
EdxC2:						
Eldean	Very limited Seepage Too clayey Slope	 1.00 1.00 0.04	Very limited Seepage Slope	 1.00 0.04	Very limited Too clayey Slope	 1.00 0.04
EdxD2:						
Eldean	Very limited Seepage Too clayey Slope	 1.00 1.00 1.00	Very limited Seepage Slope	 1.00 1.00	Very limited Too clayey Slope	 1.00 1.00
EdxE2:						
Eldean	Very limited Slope Seepage	 1.00 1.00	Very limited Slope Seepage	 1.00 1.00	Very limited Slope	 1.00
FexB2:						
Fox	Very limited Seepage	 1.00	Very limited Seepage	 1.00	Not limited	

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FexC2:						
Fox	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
FgoB2:						
Fox	Very limited		Very limited		Not limited	
	Seepage	1.00	Seepage	1.00		
Muncie	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
FgoC2:						
Fox	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
Muncie	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.04	Too clayey	0.50
	Too clayey	0.50			Slope	0.04
	Slope	0.04				
FgrC3:						
Fox	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
Muncie	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.04	Too clayey	0.50
	Too clayey	0.50			Slope	0.04
	Slope	0.04				
FgrD3:						
Fox	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00		
Muncie	Very limited		Very limited		Very limited	
	Seepage	1.00	Slope	1.00	Slope	1.00
	Slope	1.00			Too clayey	0.50
	Too clayey	0.50				
GlnAH:						
Gessie	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Seepage	1.00				
Eel	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Seepage	1.00			Seepage	0.22
	Too clayey	0.50				
GlrB2:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Depth to saturated zone	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GlyB3:						
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
HtbAN:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Content of organic matter	1.00
	Seepage	1.00			Seepage	0.22
HtbAU:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Content of organic matter	1.00
	Seepage	1.00			Seepage	0.22
LdfAH:						
Lash	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00		
LneAW:						
Lickcreek	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
LshC3:						
Losantville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Depth to saturated zone	1.00
LshD3:						
Losantville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00	Slope	0.84	Depth to saturated zone	1.00
	Slope	0.84			Slope	0.84
LteE:						
Lybrand	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00			Too clayey	1.00
	Depth to saturated zone	0.09			Hard to compact	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
LteE:						
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
LteG:						
Lybrand	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00			Too clayey	1.00
	Depth to saturated zone	0.09			Hard to compact	1.00
Belmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
MecA:						
Martinsville	Not limited		Not limited		Not limited	
MecB:						
Martinsville	Not limited		Not limited		Not limited	
MmcB2:						
Miami	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
MmcC2:						
Miami	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50	Slope	0.04	Depth to saturated zone	0.47
	Slope	0.04			Slope	0.04
MoeB2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
MoeC2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
MorA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MphA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
MprA:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
MryA:						
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Seepage	0.52
					Too clayey	0.50
MumC2:						
Morley	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.19	Too clayey	1.00
	Depth to saturated zone	0.86			Hard to compact	1.00
					Depth to saturated zone	0.47
MumD2:						
Morley	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Slope	0.84	Too clayey	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Hard to compact	1.00
	Slope	0.84			Slope	0.84
					Depth to saturated zone	0.47
MvbC3:						
Morley	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
	Depth to saturated zone	1.00			Hard to compact	1.00
					Depth to saturated zone	0.86
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
MvbD3:						
Morley	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Slope	0.84	Too clayey	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Hard to compact	1.00
	Slope	0.84			Depth to saturated zone	0.86
					Slope	0.84
Mississinewa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.84	Slope	0.84	Slope	0.84
	Too clayey	0.50			Too clayey	0.50
MvxA:						
Mountpleasant	Very limited		Not limited		Not limited	
	Seepage	1.00				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MvxB2:						
Mountpleasant-------	Very limited		Not limited		Not limited	
	Seepage	1.00				
MvxC2:						
Mountpleasant-------	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.04	Slope	0.04
	Slope	0.04				
MwzAN:						
Muskego-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Hard to compact	1.00
MwzAU:						
Muskego-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Hard to compact	1.00
ObxA:						
Ockley--------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
ObxB2:						
Ockley--------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
PgaA:						
Pella---------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PkkA:						
Pewamo--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Pmg:						
Pits, gravel--------	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry--------	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too Sandy	1.00			Too Sandy	1.00
					Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RroAH:						
Ross----------------	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Seepage	1.00				
Lash----------------	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00		
RrwB:						
Rawson--------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
SgmAH:						
Shoals--------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
	Seepage	1.00	Seepage	1.00		
SmsAH:						
Sloan---------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
SnlA:						
Southwest-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
SvsE2:						
Strawn--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
SvsG:						
Strawn--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Belmore-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Gravel content	0.01
ThrA:						
Treaty--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uam:						
Udorthents	Not limited		Not limited		Not limited	
UccA:						
Urban land	Not rated		Not rated		Not rated	
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
Treaty	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
Ucu:						
Udorthents	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too Sandy	1.00
	Too Sandy	1.00			Seepage	1.00
					Gravel content	1.00
UdmA:						
Urban land	Not rated		Not rated		Not rated	
Blount	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Pewamo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
UemB:						
Urban land	Not rated		Not rated		Not rated	
Fox	Very limited		Very limited		Not limited	
	Seepage	1.00	Seepage	1.00		
UetB:						
Urban land	Not rated		Not rated		Not rated	
Glynwood	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Depth to saturated zone	1.00
UfuA:						
Urban land	Not rated		Not rated		Not rated	
Millgrove	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Seepage	0.52
					Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
UhaB:						
Urban land	Not rated		Not rated		Not rated	
Wawaka	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too clayey	0.50
Miami	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
WbgC3:						
Wapahani	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
WdrA:						
Wawaka	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too clayey	0.50
WdrB2:						
Wawaka	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too clayey	0.50
WdrC2:						
Wawaka	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.04	Too clayey	0.50
	Slope	0.04			Slope	0.04
WonA:						
Williamstown	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50

Table 15a.--Construction Materials

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table]

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
BdhAH:				
Bellcreek	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
BdlC2:				
Belmore	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.08
BdmA:				
Belmore	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.08
BdmB2:				
Belmore	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.08
BdsAN:				
Benadum	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
BdsAU:				
Benadum	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
BltA:				
Blount	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
BmlA:				
Blount	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Del Rey	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
CdgC3:				
Casco	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.73	Bottom layer	0.50
CudA:				
Crosby	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
DdxA:				
Digby	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
Haney	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.08
EdxA:				
Eldean	Fair		Fair	
	Thickest layer	0.08	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.43
EdxB2:				
Eldean	Fair		Fair	
	Thickest layer	0.08	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.43
EdxC2:				
Eldean	Fair		Fair	
	Thickest layer	0.08	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.43
EdxD2:				
Eldean	Fair		Fair	
	Thickest layer	0.08	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.43
EdxE2:				
Eldean	Fair		Fair	
	Thickest layer	0.19	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.43
FexB2:				
Fox	Fair		Fair	
	Thickest layer	0.01	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.58
FexC2:				
Fox	Fair		Fair	
	Thickest layer	0.01	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.58
FgoB2:				
Fox	Fair		Fair	
	Thickest layer	0.01	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.58
Muncie	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.62	Bottom layer	0.46
FgoC2:				
Fox	Fair		Fair	
	Thickest layer	0.01	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.58
Muncie	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.62	Bottom layer	0.46

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
FgrC3:				
Fox	Fair		Fair	
	Thickest layer	0.14	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.76
Muncie	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.62	Bottom layer	0.46
FgrD3:				
Fox	Fair		Fair	
	Thickest layer	0.14	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.76
Muncie	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.62	Bottom layer	0.46
GlnAH:				
Gessie	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Eel	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
GlrB2:				
Glynwood	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
GlyB3:				
Glynwood	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Mississinewa	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
HtbAN:				
Houghton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
	Content of organic matter	0.00	Content of organic matter	0.00
HtbAU:				
Houghton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
	Content of organic matter	0.00	Content of organic matter	0.00
LdfAH:				
Lash	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
LneAW:				
Lickcreek-----------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
LshC3:				
Losantville---------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
LshD3:				
Losantville---------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
LteE:				
Lybrand-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Belmore-------------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
LteG:				
Lybrand-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Belmore-------------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
MecA:				
Martinsville--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MecB:				
Martinsville--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MmcB2:				
Miami---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MmcC2:				
Miami---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MoeB2:				
Miamian-------------	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
MoeC2:				
Miamian-------------	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
MorA:				
Milford-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MphA:				
Milford-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MprA:				
Milford-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MryA:				
Millgrove-----------	Fair		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.60	Thickest layer	0.00
MumC2:				
Morley--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MumD2:				
Morley--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MvbC3:				
Morley--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Mississinewa--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MvbD3:				
Morley--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Mississinewa--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MvxA:				
Mountpleasant-------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.71	Bottom layer	0.58
MvxB2:				
Mountpleasant-------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.71	Bottom layer	0.58
MvxC2:				
Mountpleasant-------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.71	Bottom layer	0.58

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
MwzAN:				
Muskego	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MwzAU:				
Muskego	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
ObxA:				
Ockley	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.58
ObxB2:				
Ockley	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.75	Bottom layer	0.58
PgaA:				
Pella	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
PkkA:				
Pewamo	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Pmg:				
Pits, gravel	Not rated		Not rated	
Pml:				
Pits, quarry	Not rated		Not rated	
ReyA:				
Rensselaer	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
RroAH:				
Ross	Fair		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.23	Thickest layer	0.00
Lash	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
RrwB:				
Rawson	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
SgmAH:				
Shoals	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
SmsAH:				
Sloan---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
SnlA:				
Southwest-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
SvsE2:				
Strawn--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Belmore-------------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
SvsG:				
Strawn--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Belmore-------------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.08
ThrA:				
Treaty--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Uam:				
Udorthents----------	Not rated		Not rated	
UccA:				
Urban land----------	Not rated		Not rated	
Crosby--------------	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
Treaty--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Ucu:				
Udorthents----------	Not rated		Not rated	
UdmA:				
Urban land----------	Not rated		Not rated	
Blount--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Pewamo--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
UemB:				
Urban land----------	Not rated		Not rated	
Fox----------------	Fair		Fair	
	Thickest layer	0.01	Thickest layer	0.01
	Bottom layer	0.71	Bottom layer	0.58
UetB:				
Urban land----------	Not rated		Not rated	
Glynwood------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
UfuA:				
Urban land----------	Not rated		Not rated	
Millgrove-----------	Fair		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.60	Thickest layer	0.00
UhaB:				
Urban land----------	Not rated		Not rated	
Wawaka--------------	Fair		Fair	
	Thickest layer	0.23	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.84
Miami---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
W:				
Water---------------	Not rated		Not rated	
WbgB3:				
Wapahani------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
WbgC3:				
Wapahani------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
WdrA:				
Wawaka--------------	Fair		Fair	
	Thickest layer	0.23	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.84
WdrB2:				
Wawaka--------------	Fair		Fair	
	Thickest layer	0.23	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.84
WdrC2:				
Wawaka--------------	Fair		Fair	
	Thickest layer	0.23	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.84

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
WonA:				
Williamstown--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15b.--Construction Materials

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
BdhAH:						
Bellcreek-----------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.92	Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.16		
BdlC2:						
Belmore-------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
	Too acid	0.97			Hard to reclaim	0.50
	Carbonate content	0.97			Slope	0.96
BdmA:						
Belmore-------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
	Water erosion	0.90			Hard to reclaim	0.50
	Too acid	0.97				
	Carbonate content	0.97				
BdmB2:						
Belmore-------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
	Water erosion	0.90			Hard to reclaim	0.50
	Too acid	0.97				
	Carbonate content	0.97				
BdsAN:						
Benadum-------------	Fair		Poor		Poor	
	Water erosion	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
BdsAU:						
Benadum-------------	Fair		Poor		Poor	
	Water erosion	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
BltA:						
Blount--------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.46	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.80	Hard to reclaim	0.54
	Water erosion	0.90				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BmlA:						
Blount--------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.46	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.80	Hard to reclaim	0.54
	Water erosion	0.90				
	Too acid	0.97				
Del Rey-------------	Fair		Poor		Poor	
	Too clayey	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.05
	Carbonate content	0.80	Shrink-swell	0.94		
	Water erosion	0.90				
	Too acid	0.97				
CdgC3:						
Casco---------------	Poor		Poor		Poor	
	Droughty	0.00	Low strength	0.00	Hard to reclaim	0.00
	Too clayey	0.02	Shrink-swell	0.87	Too clayey	0.01
	Carbonate content	0.08			Slope	0.63
	Low content of organic matter	0.88			Rock fragments	0.97
CudA:						
Crosby--------------	Fair		Poor		Poor	
	Too clayey	0.08	Depth to saturated zone	0.00	Hard to reclaim	0.00
	Carbonate content	0.08	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.68	Shrink-swell	0.99	Too clayey	0.06
	Low content of organic matter	0.88				
	Water erosion	0.90				
DdxA:						
Digby---------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90	Low strength	0.00	Hard to reclaim	0.50
	Carbonate content	0.92				
	Too acid	0.97				
Haney---------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90	Low strength	0.00	Hard to reclaim	0.50
	Too acid	0.97			Rock fragments	0.88
	Carbonate content	0.97				
EdxA:						
Eldean--------------	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.00
	Too clayey	0.00	Shrink-swell	0.82	Hard to reclaim	0.20
	Droughty	0.57			Rock fragments	0.50
	Low content of organic matter	0.88				
	Water erosion	0.90				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
EdxB2:						
Eldean----------------	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.00
	Too clayey	0.00	Shrink-swell	0.88	Rock fragments	0.50
	Droughty	0.34			Hard to reclaim	0.54
	Low content of organic matter	0.88				
	Water erosion	0.90				
EdxC2:						
Eldean----------------	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.00
	Too clayey	0.00	Shrink-swell	0.88	Rock fragments	0.50
	Droughty	0.34			Hard to reclaim	0.54
	Low content of organic matter	0.88			Slope	0.96
	Water erosion	0.90				
EdxD2:						
Eldean----------------	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Slope	0.00
	Too clayey	0.00	Shrink-swell	0.88	Too clayey	0.00
	Droughty	0.34			Rock fragments	0.50
	Low content of organic matter	0.88			Hard to reclaim	0.54
	Water erosion	0.90				
EdxE2:						
Eldean----------------	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.88	Slope	0.00	Rock fragments	0.00
			Shrink-swell	0.98	Hard to reclaim	0.03
	Water erosion	0.90				
	Droughty	0.94				
	Too acid	0.97				
FexB2:						
Fox-------------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.50			Rock fragments	0.00
	Droughty	0.90				
	Too acid	0.97				
FexC2:						
Fox-------------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.50			Rock fragments	0.00
					Slope	0.96
	Droughty	0.90				
	Too acid	0.97				
FgoB2:						
Fox-------------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.12			Rock fragments	0.00
	Droughty	0.90				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
FgoB2:						
Muncie	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.01
	Too clayey	0.02	Shrink-swell	0.79	Hard to reclaim	0.97
	Low content of organic matter	0.12				
	Water erosion	0.99				
FgoC2:						
Fox	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.12			Rock fragments	0.00
					Slope	0.96
	Droughty	0.90				
	Too acid	0.97				
Muncie	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.01
	Too clayey	0.02	Shrink-swell	0.79	Slope	0.96
	Low content of organic matter	0.12			Hard to reclaim	0.97
	Water erosion	0.99				
FgrC3:						
Fox	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.12	Shrink-swell	0.99	Rock fragments	0.00
					Slope	0.96
	Droughty	0.13				
	Too acid	0.97				
Muncie	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.01
	Too clayey	0.02	Shrink-swell	0.83	Hard to reclaim	0.20
	Low content of organic matter	0.12			Slope	0.96
	Water erosion	0.99				
FgrD3:						
Fox	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.12	Shrink-swell	0.99	Slope	0.00
					Rock fragments	0.00
	Droughty	0.13				
	Too acid	0.97				
Muncie	Poor		Poor		Poor	
	Carbonate content	0.00	Low strength	0.00	Slope	0.00
	Too clayey	0.02	Shrink-swell	0.83	Too clayey	0.01
	Low content of organic matter	0.12			Hard to reclaim	0.20
	Water erosion	0.99				
GlnAH:						
Gessie	Fair		Poor		Fair	
	Water erosion	0.90	Low strength	0.00	Carbonate content	0.97
	Carbonate content	0.92				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
GlnAH:						
Eel	Fair		Poor		Fair	
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.14
	Carbonate content	0.92	Depth to saturated zone	0.14		
GlrB2:						
Glynwood	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Hard to reclaim	0.00
	Carbonate content	0.39	Depth to saturated zone	0.14	Too clayey	0.00
	Low content of organic matter	0.88	Shrink-swell	0.80	Depth to saturated zone	0.14
	Droughty	0.89				
	Water erosion	0.90				
GlyB3:						
Glynwood	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Droughty	0.01	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.39	Shrink-swell	0.73	Hard to reclaim	0.00
	Low content of organic matter	0.88				
	Too acid	0.97				
Mississinewa	Poor		Poor		Poor	
	Droughty	0.00	Depth to saturated zone	0.00	Hard to reclaim	0.00
	Carbonate content	0.46	Low strength	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Shrink-swell	0.87	Too clayey	0.59
	Low content of organic matter	0.88				
HtbAN:						
Houghton	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
HtbAU:						
Houghton	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
LdfAH:						
Lash	Fair		Poor		Good	
	Water erosion	0.90	Low strength	0.00		
LneAW:						
Lickcreek	Fair		Poor		Poor	
	Low content of organic matter	0.88	Low strength	0.00	Hard to reclaim	0.00
	Carbonate content	0.92				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
LshC3:						
Losantville	Poor		Poor		Poor	
	Droughty	0.00	Low strength	0.00	Hard to reclaim	0.00
	Too clayey	0.00	Depth to saturated zone	0.14	Too clayey	0.00
	Carbonate content	0.08	Shrink-swell	0.65	Depth to saturated zone	0.14
	Low content of organic matter	0.12			Rock fragments	0.99
	Water erosion	0.99				
LshD3:						
Losantville	Poor		Poor		Poor	
	Droughty	0.00	Low strength	0.00	Hard to reclaim	0.00
	Too clayey	0.00	Depth to saturated zone	0.14	Too clayey	0.00
	Carbonate content	0.08	Shrink-swell	0.65	Depth to saturated zone	0.14
	Low content of organic matter	0.12			Slope	0.16
	Water erosion	0.99			Rock fragments	0.99
LteE:						
Lybrand	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Slope	0.00
	Carbonate content	0.46	Slope	0.08	Too clayey	0.00
	Too acid	0.97	Shrink-swell	0.74		
Belmore	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Too acid	0.97	Slope	0.08	Hard to reclaim	0.50
	Carbonate content	0.97				
LteG:						
Lybrand	Poor		Poor		Poor	
	Too clayey	0.00	Slope	0.00	Slope	0.00
	Carbonate content	0.46	Low strength	0.00	Too clayey	0.00
	Too acid	0.97	Shrink-swell	0.74		
Belmore	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.97	Low strength	0.00	Hard to reclaim	0.50
	Carbonate content	0.97				
MecA:						
Martinsville	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
	Carbonate content	0.68				
	Too acid	0.97				
MecB:						
Martinsville	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
	Carbonate content	0.68				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
MmcB2:						
Miami---------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
	Carbonate content	0.16	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.74	Shrink-swell	0.95	Hard to reclaim	0.94
	Droughty	0.97				
	Too clayey	0.98				
MmcC2:						
Miami---------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
	Carbonate content	0.16	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.74	Shrink-swell	0.95	Hard to reclaim	0.94
	Droughty	0.97			Slope	0.96
	Too clayey	0.98				
MoeB2:						
Miamian-------------	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Carbonate content	0.08	Shrink-swell	0.86	Hard to reclaim	0.80
	Low content of organic matter	0.50	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Droughty	0.90				
	Too acid	0.97				
MoeC2:						
Miamian-------------	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Carbonate content	0.08	Shrink-swell	0.86	Hard to reclaim	0.80
	Low content of organic matter	0.50	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Droughty	0.90				
	Too acid	0.97				
MorA:						
Milford-------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Low strength	0.00	Depth to saturated zone	0.00
	Water erosion	0.90			Content of organic matter	0.78
MphA:						
Milford-------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.97	Shrink-swell	0.92		
MprA:						
Milford-------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.97	Shrink-swell	0.77		

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
MryA:						
Millgrove	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Low strength	0.00	Hard to reclaim	0.32
	Carbonate content	0.97			Too clayey	0.59
MumC2:						
Morley	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.68	Shrink-swell	0.80	Hard to reclaim	0.46
	Low content of organic matter	0.88	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.88				
	Water erosion	0.90				
MumD2:						
Morley	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.68	Shrink-swell	0.80	Slope	0.16
	Low content of organic matter	0.88	Depth to saturated zone	0.89	Hard to reclaim	0.46
	Too acid	0.88			Depth to saturated zone	0.89
	Water erosion	0.90				
MvbC3:						
Morley	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Droughty	0.26	Depth to saturated zone	0.53	Hard to reclaim	0.46
	Carbonate content	0.68	Shrink-swell	0.77	Depth to saturated zone	0.53
	Low content of organic matter	0.88				
	Too acid	0.97				
Mississinewa	Poor		Poor		Poor	
	Droughty	0.00	Depth to saturated zone	0.00	Hard to reclaim	0.00
	Carbonate content	0.46	Low strength	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Shrink-swell	0.87	Too clayey	0.59
	Low content of organic matter	0.88				
MvbD3:						
Morley	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Droughty	0.26	Depth to saturated zone	0.53	Slope	0.16
	Carbonate content	0.68	Shrink-swell	0.77	Hard to reclaim	0.46
	Low content of organic matter	0.88			Depth to saturated zone	0.53
	Too acid	0.97				
Mississinewa	Poor		Poor		Poor	
	Droughty	0.00	Depth to saturated zone	0.00	Hard to reclaim	0.00
	Carbonate content	0.46	Low strength	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Shrink-swell	0.87	Slope	0.16
	Low content of organic matter	0.88			Too clayey	0.59

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
MvxA:						
Mountpleasant-------	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Hard to reclaim	0.05
	Low content of organic matter	0.12	Shrink-swell	0.91	Carbonate content	0.32
					Rock fragments	0.88
	Water erosion	0.90				
MvxB2:						
Mountpleasant-------	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Hard to reclaim	0.05
	Low content of organic matter	0.12	Shrink-swell	0.91	Carbonate content	0.32
					Rock fragments	0.88
	Water erosion	0.90				
MvxC2:						
Mountpleasant-------	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Hard to reclaim	0.05
	Low content of organic matter	0.12	Shrink-swell	0.91	Carbonate content	0.32
					Rock fragments	0.88
	Water erosion	0.90			Slope	0.96
MwzAN:						
Muskego-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
MwzAU:						
Muskego-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
ObxA:						
Ockley--------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Too acid	0.68				
	Low content of organic matter	0.88				
	Water erosion	0.90				
ObxB2:						
Ockley--------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Too acid	0.68	Shrink-swell	0.99		
	Low content of organic matter	0.88				
	Water erosion	0.90				
PgaA:						
Pella---------------	Fair		Poor		Poor	
	Low content of organic matter	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.68	Low strength	0.00	Too clayey	0.59
	Carbonate content	0.80				
	Water erosion	0.99				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
PkkA:						
Pewamo	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.80	Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.66		
Pmg:						
Pits, gravel	Not rated		Not rated		Not rated	
Pml:						
Pits, quarry	Not rated		Not rated		Not rated	
ReyA:						
Rensselaer	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
RroAH:						
Ross	Good		Poor		Good	
			Low strength	0.00		
Lash	Fair		Poor		Good	
	Water erosion	0.90	Low strength	0.00		
RrwB:						
Rawson	Fair		Poor		Poor	
	Low content of organic matter	0.50	Low strength	0.00	Hard to reclaim	0.00
	Carbonate content	0.68	Depth to saturated zone	0.89	Rock fragments	0.88
	Too acid	0.97	Shrink-swell	0.98	Depth to saturated zone	0.89
	Droughty	0.99				
SgmAH:						
Shoals	Fair		Poor		Poor	
	Water erosion	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
SmsAH:						
Sloan	Fair		Poor		Poor	
	Carbonate content	0.80	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.88	Low strength	0.00		
	Water erosion	0.99				
SnlA:						
Southwest	Fair		Poor		Poor	
	Water erosion	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
			Shrink-swell	0.99		
SvsE2:						
Strawn	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Carbonate content	0.80	Slope	0.08	Carbonate content	0.80
	Water erosion	0.99			Rock fragments	0.88

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SvsE2:						
Belmore-------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Too acid	0.97	Slope	0.08	Hard to reclaim	0.50
	Carbonate content	0.97				
SvsG:						
Strawn--------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
			Low strength	0.00	Carbonate content	0.80
	Carbonate content	0.80	Low strength	0.00	Rock fragments	0.88
	Water erosion	0.99				
Belmore-------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
			Low strength	0.00	Hard to reclaim	0.50
	Too acid	0.97				
	Carbonate content	0.97				
ThrA:						
Treaty--------------	Fair		Poor		Poor	
	Carbonate content	0.46	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.82				
	Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.72
			Shrink-swell	0.99		
	Water erosion	0.99				
Uam:						
Udorthents----------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.00
			Shrink-swell	0.99		
	Droughty	0.94				
UccA:						
Urban land----------	Not rated		Not rated		Not rated	
Crosby--------------	Fair		Poor		Poor	
	Too clayey	0.08	Depth to saturated zone	0.00	Hard to reclaim	0.00
	Carbonate content	0.08			Depth to saturated zone	0.00
	Too acid	0.68	Low strength	0.00		
	Low content of organic matter	0.88	Shrink-swell	0.99	Too clayey	0.06
	Water erosion	0.90				
Treaty--------------	Fair		Poor		Poor	
	Carbonate content	0.46	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Low strength	0.00	Too clayey	0.72
	Water erosion	0.99	Shrink-swell	0.99		
Ucu:						
Udorthents----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Hard to reclaim	0.00
	Wind erosion	0.00			Too sandy	0.00
	Droughty	0.00			Rock fragments	0.00
	Low content of organic matter	0.50			Carbonate content	0.68

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
UdmA:						
Urban land----------	Not rated		Not rated		Not rated	
Blount--------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.46	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.80	Hard to reclaim	0.54
	Water erosion	0.90				
	Too acid	0.97				
Pewamo--------------	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.80	Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.66		
UemB:						
Urban land----------	Not rated		Not rated		Not rated	
Fox-----------------	Fair		Poor		Poor	
	Carbonate content	0.08	Low strength	0.00	Hard to reclaim	0.00
	Low content of organic matter	0.50			Rock fragments	0.00
	Droughty	0.90				
	Too acid	0.97				
UetB:						
Urban land----------	Not rated		Not rated		Not rated	
Glynwood------------	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.39	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Droughty	0.71	Shrink-swell	0.76	Hard to reclaim	0.71
	Low content of organic matter	0.88				
	Water erosion	0.90				
UfuA:						
Urban land----------	Not rated		Not rated		Not rated	
Millgrove-----------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.82	Low strength	0.00	Hard to reclaim	0.32
	Carbonate content	0.97			Too clayey	0.59
UhaB:						
Urban land----------	Not rated		Not rated		Not rated	
Wawaka--------------	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.60
	Low content of organic matter	0.12	Shrink-swell	0.98	Hard to reclaim	0.90
	Water erosion	0.90				
	Too clayey	0.92				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
UhaB:						
Miami	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
	Carbonate content	0.16	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.74	Shrink-swell	0.95	Hard to reclaim	0.94
	Droughty	0.97				
	Too clayey	0.98				
W:						
Water	Not rated		Not rated		Not rated	
WbgB3:						
Wapahani	Poor		Poor		Poor	
	Droughty	0.00	Low strength	0.00	Hard to reclaim	0.00
	Carbonate content	0.08	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Low content of organic matter	0.12				
	Water erosion	0.90				
WbgC3:						
Wapahani	Poor		Poor		Poor	
	Droughty	0.00	Low strength	0.00	Hard to reclaim	0.00
	Carbonate content	0.08	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Low content of organic matter	0.12				
	Water erosion	0.90				
WdrA:						
Wawaka	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.60
	Low content of organic matter	0.12	Shrink-swell	0.98	Hard to reclaim	0.90
	Water erosion	0.90				
	Too clayey	0.92				
	Too acid	0.97				
WdrB2:						
Wawaka	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.60
	Low content of organic matter	0.12	Shrink-swell	0.98	Hard to reclaim	0.90
	Water erosion	0.90				
	Too clayey	0.92				
	Too acid	0.97				
WdrC2:						
Wawaka	Poor		Poor		Fair	
	Carbonate content	0.00	Low strength	0.00	Too clayey	0.60
	Low content of organic matter	0.12	Shrink-swell	0.98	Hard to reclaim	0.90
	Water erosion	0.90			Slope	0.96
	Too clayey	0.92				
	Too acid	0.97				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WonA:						
Williamstown--------	Fair		Poor		Fair	
	Carbonate content	0.16	Low strength	0.00	Depth to saturated zone	0.14
	Low content of organic matter	0.88	Depth to saturated zone	0.14	Hard to reclaim	0.97
	Water erosion	0.90	Shrink-swell	0.94		
	Too acid	0.97				

Table 16.--Engineering Index Properties

[Absence of an entry indicates that the data were not estimated. The representative values for USDA texture and for Unified and AASHTO classifications are designated with an asterisk]

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BdhAH:												
Bellcreek-------	0-10	Silty clay loam*	CL* , CH	A-6*, A-7-6	0	0	95-100	92-100	75-100	55-100	35-55	15-30
	10-48	Silty clay*, silty clay loam, clay loam, clay.	CH* , CL	A-7-6*, A-6	0	0	95-100	92-100	75-100	55-100	40-65	20-40
	48-64	Silty clay loam*, clay loam, silty clay, clay.	CL* , CH	A-7-6*, A-6	0	0	95-100	92-100	75-100	55-100	35-60	15-35
	64-80	Stratified loamy sand to clay loam*.	CL* , ML, SC, SM	A-6*, A-2-4, A-7-6	0	0	90-100	85-100	60-100	15-85	15-45	2-20
BdlC2:												
Belmore---------	0-9	Loam*, silt loam	CL-ML* , CL, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	9-21	Sandy clay loam*, clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-98	55-95	40-70	17-45	4-30
	21-41	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	SC* , CL, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	41-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-2*, A-1, A-4	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BdmA:												
Belmore---------	0-9	Silt loam*, loam	CL-ML* , CL, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	9-14	Silt loam*, loam	CL-ML* , CL, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	14-21	Clay loam*, sandy clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-98	55-95	40-70	17-45	4-30
	21-41	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	CL* , SC, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	41-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-2*, A-1, A-4	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10
BdmB2:												
Belmore---------	0-9	Silt loam*, loam	CL-ML* , CL, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	9-21	Clay loam*, sandy clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-98	55-95	40-70	17-45	4-30
	21-41	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	CL* , SC, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	41-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-2*, A-1, A-4	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10
BdsAN:												
Benadum---------	0-10	Silt loam*	CL* , CL-ML	A-4*, A-6	0	0	100	90-100	85-100	65-100	26-39	6-18
	10-21	Silty clay loam*, silt loam.	CL* , CL-ML	A-6*, A-4, A-7	0	0	100	90-100	85-100	65-100	26-46	6-22
	21-44	Muck*	PT*	A-8*	0	0	100	100	100	90-100	0-0	NP
	44-80	Coprogenous material*.	OL*	A-5*	0	0	95-100	95-100	85-100	75-95	40-50	2-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BdsAU:												
Benadum---------	0-10	Silt loam*	CL* , CL-ML	A-4*, A-6	0	0	100	90-100	85-100	65-100	26-39	6-18
	10-21	Silty clay loam*, silt loam.	CL* , CL-ML	A-6*, A-4, A-7	0	0	100	90-100	85-100	65-100	26-46	6-22
	21-44	Muck*	PT*	A-8*	0	0	100	100	100	90-100	0-0	NP
	44-80	Coprogenous material*.	OL*	A-5*	0	0	95-100	95-100	85-100	75-95	40-50	2-10
BltA:												
Blount----------	0-7	Silt loam*	CL*	A-6*, A-4	0	0	95-100	95-100	90-100	75-95	25-40	8-20
	7-23	Silty clay*, silty clay loam, clay.	CL* , CH	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	75-85	35-60	15-35
	23-30	Silty clay loam*, clay loam.	CL* , CH, MH, ML	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	70-90	35-55	10-30
	30-42	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
	42-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
BmlA:												
Blount----------	0-7	Silt loam*	CL*	A-6*, A-4	0	0	95-100	95-100	90-100	75-95	25-40	8-20
	7-23	Silty clay*, silty clay loam, clay.	CL* , CH	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	75-85	35-60	15-35
	23-30	Silty clay loam*, clay loam.	CL* , CH, MH, ML	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	70-90	35-55	10-30
	30-42	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
	42-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
Del Rey---------	0-9	Silt loam*	CL*	A-6*, A-7	0	0	95-100	95-100	90-100	70-95	25-45	10-25
	9-29	Silty clay loam*, silty clay.	CL* , CH	A-7*	0	0	95-100	95-100	90-100	85-95	40-55	20-30
	29-37	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	95-100	95-100	90-100	70-95	30-50	10-30
	37-80	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	95-100	95-100	90-100	70-95	30-45	10-25

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CdgC3:												
Casco-----------	0-8	Sandy clay loam*	CL* , SC	A-6*, A-2-6	0	0-5	80-100	75-100	60-85	30-75	30-40	10-20
	8-16	Gravelly sandy clay*, sandy clay loam, gravelly clay loam.	CL* , GC, SC	A-6*, A-2, A-7	0-1	0-5	55-100	50-100	40-90	20-65	30-49	11-26
	16-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP* , GP, GP-GM, SP-SM	A-1-b*, A-2, A-3	0-3	0-10	25-100	20-95	10-55	2-10	0-14	NP
CudA:												
Crosby----------	0-8	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	5-20
	14-28	Silty clay loam*, clay loam, silty clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL* , ML, SC, SM	A-6*, A-4	0-1	0-3	85-100	80-98	65-90	40-70	15-45	3-25
	36-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-19

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
DdxA:												
Digby-----------	0-12	Silt loam*, loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	80-100	70-90	50-80	21-36	2-15
	12-20	Clay loam*, sandy clay loam, loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-2, A-4	0	0	85-100	80-98	45-80	20-65	25-50	4-29
	20-31	Gravelly sandy clay loam*, gravelly clay loam, gravelly loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4	0	0-5	85-100	50-80	30-75	15-65	25-50	4-29
	31-41	Gravelly sandy clay loam*, gravelly clay loam, gravelly loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4	0	0-5	85-100	50-80	30-75	15-65	25-50	4-29
	41-80	Stratified gravelly sand to gravelly coarse sandy loam to very gravelly sandy loam*.	SC-SM* , SM, SW-SM	A-2*, A-1	0	0-5	80-100	45-80	25-50	10-30	0-20	NP-10
Haney-----------	0-8	Silt loam*, loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	80-100	70-90	50-80	20-36	NP-15
	8-15	Silt loam*, loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	80-100	70-90	50-80	20-36	NP-15
	15-36	Clay loam*, sandy clay loam, loam.	CL* , ML, SC, SM	A-6*, A-4	0	0	80-100	75-95	55-75	40-70	25-50	3-26
	36-45	Gravelly loam*, gravelly clay loam, gravelly sandy clay loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	45-80	35-80	15-65	25-50	4-29
	45-80	Stratified loamy sand to gravelly sandy loam*.	SC-SM* , SM, SW-SM	A-2*, A-1-a, A-1-b, A-4	0	0-5	80-100	45-80	25-60	10-40	0-20	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
EdxA:												
Eldean----------	0-7	Silt loam*, loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	7-10	Loam*, silt loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	10-26	Clay*, sandy clay, gravelly clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	75-100	60-100	55-85	50-70	38-60	15-30
	26-31	Gravelly sandy clay loam*, very gravelly clay loam, sandy loam.	SC* , CL	A-6*, A-2, A-7	0-1	0-10	55-85	45-85	30-75	15-60	20-50	5-23
	31-80	Stratified sand to very gravelly loamy coarse sand to extremely gravelly coarse sandy loam*.	SP-SM* , GM, GP-GM, SM	A-1-a*	0-3	0-15	35-85	20-60	5-25	0-15	0-10	NP-4
EdxB2:												
Eldean----------	0-7	Silt loam*, loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	7-23	Clay*, sandy clay, gravelly clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	75-100	60-100	55-85	50-70	38-60	15-30
	23-30	Gravelly sandy clay loam*, very gravelly clay loam, sandy loam.	SC* , CL	A-6*, A-2, A-7	0-1	0-10	55-85	45-85	30-75	15-60	20-50	5-23
	30-80	Stratified sand to very gravelly loamy coarse sand to extremely gravelly coarse sandy loam*.	SP-SM*, GP-GM, SM, GM	A-1-a*	0-3	0-15	35-85	20-60	5-25	0-15	0-10	NP-4

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EdxC2:												
Eldean----------	0-7	Silt loam*, loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	7-23	Clay*, sandy clay, gravelly clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	75-100	60-100	55-85	50-70	38-60	15-30
	23-30	Gravelly sandy clay loam*, very gravelly clay loam, sandy loam.	SC* , CL	A-6*, A-2, A-7	0-1	0-10	55-85	45-85	30-75	15-60	20-50	5-23
	30-80	Stratified sand to very gravelly loamy coarse sand to extremely gravelly coarse sandy loam*.	SP-SM* , GM, GP-GM, SM	A-1-a*	0-3	0-15	35-85	20-60	5-25	0-15	0-10	NP-4
EdxD2:												
Eldean----------	0-7	Silt loam*, loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	7-23	Clay*, sandy clay, gravelly clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	75-100	60-100	55-85	50-70	38-60	15-30
	23-30	Gravelly sandy clay loam*, very gravelly clay loam, sandy loam.	SC* , CL	A-6*, A-2, A-7	0-1	0-10	55-85	45-85	30-75	15-60	20-50	5-23
	30-80	Stratified sand to very gravelly loamy coarse sand to extremely gravelly coarse sandy loam*.	SP-SM* , GM, GP-GM, SM	A-1-a*	0-3	0-15	35-85	20-60	5-25	0-15	0-10	NP-4

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EdxE2:												
Eldean----------	0-5	Silt loam*, loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	5-11	Loam*, silt loam	CL* , CL-ML	A-6*, A-4	0	0	85-100	80-100	70-100	55-90	20-40	4-20
	11-22	Clay*, sandy clay, gravelly clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	75-100	60-100	55-85	50-70	38-60	15-30
	22-39	Gravelly sandy clay loam*, very gravelly clay loam, sandy loam.	SC* , CL	A-6*, A-2, A-7	0-1	0-10	55-85	45-85	30-75	15-60	20-50	5-23
	39-80	Stratified sand to very gravelly loamy coarse sand to extremely gravelly coarse sandy loam*.	SP-SM* , GM, GP-GM, SM	A-1-a*	0-3	0-15	35-85	20-60	5-25	0-15	0-10	NP-4
FexB2:												
Fox-------------	0-10	Loam*, silt loam	CL-ML* , CL, ML	A-4*	0	0	95-100	85-100	70-90	55-85	15-25	3-8
	10-19	Clay loam*, sandy clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	60-100	30-95	15-80	22-45	10-25
	19-31	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-97	30-85	15-65	22-45	10-25
	31-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FexC2:												
Fox-------------	0-10	Loam*, silt loam	CL-ML* , CL, ML	A-4*	0	0	95-100	85-100	70-90	55-85	15-25	3-8
	10-19	Clay loam*, sandy clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	60-100	30-95	15-80	22-45	10-25
	19-31	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-97	30-85	15-65	22-45	10-25
	31-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP
FgoB2:												
Fox-------------	0-10	Loam*, silt loam	CL-ML* , CL, ML	A-4*	0	0	95-100	85-100	70-90	55-85	15-25	3-8
	10-19	Clay loam*, sandy clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	60-100	30-95	15-80	22-45	10-25
	19-31	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-97	30-85	15-65	22-45	10-25
	31-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP
Muncie----------	0-6	Silt loam*	CL* , ML	A-4*, A-6	0	0	90-100	85-100	80-95	55-85	23-40	3-17
	6-30	Clay loam*, silty clay loam, clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	85-100	65-85	34-60	12-38
	30-37	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	90-100	85-98	80-95	60-85	33-54	12-33
	37-56	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	80-95	60-80	30-45	11-26
	56-80	Stratified gravelly coarse sand to loamy coarse sand*.	SP-SM* , SM, SP, SW	A-1-b*, A-2-4, A-3	0-1	0-5	55-100	50-100	15-60	0-15	0-10	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FgoC2:												
Fox	0-10	Loam*, silt loam	CL-ML* , CL, ML	A-4*	0	0	95-100	85-100	70-90	55-85	15-25	3-8
	10-19	Clay loam*, sandy clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	60-100	30-95	15-80	22-45	10-25
	19-31	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-97	30-85	15-65	22-45	10-25
	31-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP
Muncie	0-6	Silt loam*	CL* , ML	A-4*, A-6	0	0	90-100	85-100	80-95	55-85	23-40	3-17
	6-30	Clay loam*, silty clay loam, clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	85-100	65-85	34-60	12-38
	30-37	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	90-100	85-98	80-95	60-85	33-54	12-33
	37-56	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	80-95	60-80	30-45	11-26
	56-80	Stratified gravelly coarse sand to loamy coarse sand*.	SP-SM* , SM, SP, SW	A-1-b*, A-2-4, A-3	0-1	0-5	55-100	50-100	15-60	0-15	0-10	NP-2
FgrC3:												
Fox	0-7	Clay loam*	CL*	A-6*, A-4	0	0	95-100	85-100	70-95	50-90	25-40	9-20
	7-23	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	22-45	10-25
	23-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FgrC3:												
Muncie----------	0-5	Clay loam*	CL*	A-6*, A-7-6	0-1	0-3	90-100	85-100	85-100	60-85	30-50	12-32
	5-21	Clay loam*, silty clay loam, clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	85-100	65-85	34-60	12-38
	21-26	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	90-100	85-98	80-95	60-85	33-54	12-33
	26-56	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	80-95	60-80	30-45	11-26
	56-80	Stratified gravelly coarse sand to loamy coarse sand*.	SP-SM* , SM, SP, SW	A-1-b*, A-2-4, A-3	0-1	0-5	55-100	50-100	15-60	0-15	0-10	NP-2
FgrD3:												
Fox-------------	0-7	Clay loam*	CL*	A-6*, A-4	0	0	95-100	85-100	70-95	50-90	25-40	9-20
	7-23	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	22-45	10-25
	23-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1-b*, A-2, A-3	0-3	0-10	30-100	20-95	10-90	2-10	0-14	NP
Muncie----------	0-5	Clay loam*	CL*	A-6*, A-7-6	0-1	0-3	90-100	85-100	85-100	60-85	30-50	12-32
	5-21	Clay loam*, silty clay loam, clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	85-100	65-85	34-60	12-38
	21-26	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	90-100	85-98	80-95	60-85	33-54	12-33
	26-56	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	80-95	60-80	30-45	11-26
	56-80	Stratified gravelly coarse sand to loamy coarse sand*.	SP-SM* , SM, SP, SW	A-1-b*, A-2-4, A-3	0-1	0-5	55-100	50-100	15-60	0-15	0-10	NP-2
GlnAH:												
Gessie----------	0-10	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	100	95-100	90-100	55-100	20-40	3-15
	10-43	Silt loam*, loam	CL* , CL-ML, ML	A-4*, A-6	0	0	100	95-100	90-100	55-100	20-40	3-15
	43-80	Stratified sand to silt loam*.	CL* , ML, SC, SM	A-4*, A-2-4, A-6	0	0	100	85-100	65-100	15-100	0-30	NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GlnAH:												
Eel-------------	0-10	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	100	100	85-100	60-90	25-40	5-20
	10-22	Loam*, silt loam, clay loam.	CL* , CL-ML	A-6*, A-4, A-7-6	0	0	100	100	85-100	70-85	25-50	5-25
	22-34	Loam*, silt loam, silty clay loam.	CL* , CL-ML	A-6*, A-4, A-7-6	0	0	100	100	85-100	70-85	25-50	5-25
	34-42	Loam*, silty clay loam, sandy loam.	CL* , CL-ML, SC, SC-SM	A-4*, A-2-4, A-2-6, A-6	0	0	100	90-100	55-95	30-80	25-40	5-15
	42-80	Stratified sand to silty clay loam*.	SC* , CL, ML, SM	A-4*, A-2-4, A-2-6, A-6	0	0	90-100	80-100	50-95	20-75	14-40	2-15
GlrB2:												
Glynwood--------	0-7	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-100	55-90	23-40	4-20
	7-9	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-100	55-90	23-40	4-20
	9-12	Silty clay loam*, silt loam.	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-100	55-90	24-45	5-20
	12-23	Clay*, clay loam, silty clay loam.	CL* , CH	A-7*, A-6	0	0-5	95-100	85-100	75-100	65-95	40-60	15-35
	23-32	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-49	11-26
	32-80	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-45	11-26
GlyB3:												
Glynwood--------	0-5	Clay loam*	CL*	A-6*, A-7	0	0-2	95-100	92-100	75-100	60-95	25-45	10-25
	5-17	Clay*, clay loam, silty clay loam.	CL* , CH	A-7*, A-6	0-1	0-5	95-100	85-100	75-100	65-95	40-60	15-35
	17-20	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-49	11-26
	20-80	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-45	11-26
Mississinewa----	0-5	Clay loam*	CL*	A-7-6*, A-6	0-1	0-5	98-100	92-98	85-95	60-85	30-50	11-30
	5-10	Clay loam*, clay, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	92-98	85-95	70-90	37-54	20-33
	10-14	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	85-98	80-95	70-85	30-54	11-33
	14-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	98-100	85-98	80-95	70-85	30-45	11-26
HtbAN:												
Houghton--------	0-80	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---
HtbAU:												
Houghton--------	0-80	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
LdfAH:												
Lash------------	0-10	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	100	95-100	85-100	50-70	20-40	3-15
	10-14	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	100	95-100	85-100	50-70	20-40	3-15
	14-52	Loam*, sandy loam, silt loam.	CL* , ML, SC, SM	A-4*, A-2-4, A-6	0	0	100	95-100	80-100	25-85	0-40	NP-15
	52-80	Stratified fine sand to sandy loam*.	SC-SM* , SC, SM, SP-SM	A-2-4*, A-3, A-4	0	0	100	80-100	60-100	5-45	0-20	NP-10
LneAW:												
Lickcreek-------	0-10	Silt loam*, loam	CL* , CL-ML, ML	A-4*, A-6	0	0	100	90-100	80-95	55-80	20-35	NP-15
	10-19	Silt loam*, loam	CL* , ML, CL-ML	A-4*, A-6	0	0	100	90-100	80-95	55-80	20-35	NP-15
	19-39	Clay loam*, loam, silty clay loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-4, A-7-6	0	0	100	85-100	60-95	35-80	25-45	5-20
	39-54	Gravelly sandy clay loam*, sandy loam, gravelly clay loam.	SC* , CL, ML, SM	A-4*, A-2, A-6	0	0-3	90-100	50-95	30-85	20-60	20-45	NP-20
	54-80	Stratified gravelly loamy coarse sand to very gravelly coarse sandy loam to very gravelly sandy loam*.	SC* , SC-SM, SM, SP-SM	A-2-4*, A-1-b, A-2-6	0	0-5	80-100	25-75	15-60	10-30	0-25	NP-15
LshC3:												
Losantville-----	0-7	Clay loam*	CL*	A-6*, A-7-6	0-1	0-2	90-100	85-100	80-95	60-85	30-50	10-30
	7-16	Clay*, clay loam	CL* , CH	A-7-6*, A-6	0-1	0-2	90-100	80-98	75-95	55-80	35-60	15-35
	16-80	Loam*	CL* , CL-ML	A-4*, A-6	0-1	0-5	100	80-95	70-90	50-70	15-30	4-19
LshD3:												
Losantville-----	0-7	Clay loam*	CL*	A-6*, A-7-6	0-1	0-2	90-100	85-100	80-95	60-85	30-50	10-30
	7-16	Clay*, clay loam	CL* , CH	A-7-6*, A-6	0-1	0-2	90-100	80-98	75-95	55-80	35-60	15-35
	16-80	Loam*	CL* , CL-ML	A-4*, A-6	0-1	0-5	100	80-95	70-90	50-70	15-30	4-19

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LteE:												
Lybrand---------	0-9	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0-5	95-100	85-100	85-100	65-90	25-40	5-15
	9-21	Silty clay*, silty clay loam, clay, clay loam.	CH* , CL	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	40-60	20-35
	21-33	Silty clay*, silty clay loam, clay, clay loam.	CH* , CL	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	40-60	20-35
	33-45	Silty clay loam*, clay loam.	CL*	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	35-50	15-30
	45-80	Silty clay loam*, clay loam.	CL*	A-7*, A-6	0-1	0-5	95-100	80-97	75-95	65-80	35-50	15-30
Belmore---------	0-11	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	11-25	Sandy clay loam*, clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-98	55-95	40-70	17-45	4-30
	25-36	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	SC* , CL, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	36-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-2*, A-1, A-4	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10
LteG:												
Lybrand---------	0-9	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0-5	95-100	85-100	85-100	65-90	25-40	5-15
	9-21	Silty clay*, silty clay loam, clay, clay loam.	CH* , CL	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	40-60	20-35
	21-33	Silty clay*, silty clay loam, clay, clay loam.	CH* , CL	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	40-60	20-35
	33-45	Silty clay loam*, clay loam.	CL*	A-7*, A-6	0-1	0-5	95-100	85-100	85-95	65-90	35-50	15-30
	45-80	Silty clay loam*, clay loam.	CL*	A-7*, A-6	0-1	0-5	95-100	80-97	75-95	65-80	35-50	15-30

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
LteG:												
Belmore---------	0-11	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	80-98	60-95	50-80	20-40	3-15
	11-25	Sandy clay loam*, clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-98	55-95	40-70	17-45	4-30
	25-36	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	SC* , CL, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	36-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-2*, A-1, A-4	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10
MecA:												
Martinsville----	0-8	Loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	100	85-100	70-100	50-90	20-35	3-15
	8-17	Sandy clay loam*, clay loam, loam.	CL* , SC	A-6*, A-2, A-4, A-7	0	0	95-100	85-100	70-100	30-90	23-45	10-25
	17-43	Sandy clay loam*, clay loam, loam.	CL* , SC	A-6*, A-2, A-4, A-7	0	0	95-100	85-100	70-100	30-75	25-45	10-25
	43-53	Sandy loam*, loam, sandy clay loam.	SC* , CL-ML, SC-SM, SM	A-4*, A-2-4, A-2-6, A-6	0	0	95-100	85-100	50-95	25-70	15-40	2-20
	53-80	Stratified sand to silt loam*.	SC-SM* , CL, ML, SC, SM, CL-ML	A-4*, A-1-b, A-2-4	0	0	95-100	85-100	40-95	20-75	0-30	NP-10
MecB:												
Martinsville----	0-8	Loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	100	85-100	70-100	50-90	20-35	3-15
	8-17	Sandy clay loam*, clay loam, loam.	CL* , SC	A-6*, A-2, A-4, A-7	0	0	95-100	85-100	70-100	30-90	23-45	10-25
	17-43	Sandy clay loam* clay loam, loam.	CL* , SC	A-6*, A-2, A-4, A-7	0	0	95-100	85-100	70-100	30-75	25-45	10-25
	43-53	Sandy loam*, loam, sandy clay loam.	SC* , CL-ML, SC-SM, SM	A-4*, A-2-4, A-2-6, A-6	0	0	95-100	85-100	50-95	25-70	15-40	2-20
	53-80	Stratified sand to silt loam*.	SC-SM* , CL, ML, SC, SM, CL-ML	A-4*, A-1-b, A-2-4	0	0	95-100	85-100	40-95	20-75	0-30	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
MmcB2:												
Miami-----------	0-8	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	55-85	20-37	3-17
	8-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-3	90-98	85-98	80-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	20-37	3-22
	36-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	90-98	85-98	65-90	40-70	15-30	2-15
MmcC2:												
Miami-----------	0-8	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	55-85	20-37	3-17
	8-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-3	90-98	85-98	80-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	20-37	3-22
	36-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	90-98	85-98	65-90	40-70	15-30	2-15
MoeB2:												
Miamian---------	0-9	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	95-100	95-100	85-100	65-95	25-40	4-17
	9-26	Clay loam*, clay	CL* , CH	A-7*, A-6	0-1	0-5	90-100	85-100	75-95	70-85	35-55	15-30
	26-33	Loam*, clay loam	CL* , CL-ML, ML	A-6*, A-4	0-1	0-5	85-100	80-97	70-90	50-75	20-45	3-23
	33-80	Loam*	CL* , CL-ML, ML	A-6*, A-4	0-1	0-5	85-100	80-97	70-90	50-75	20-35	3-19
MoeC2:												
Miamian---------	0-9	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	95-100	95-100	85-100	65-95	25-40	4-17
	9-26	Clay loam*, clay	CL* , CH	A-7*, A-6	0-1	0-5	90-100	85-100	75-95	70-85	35-55	15-30
	26-33	Loam*, clay loam	CL* , CL-ML, ML	A-6*, A-4	0-1	0-5	85-100	80-97	70-90	50-75	20-45	3-23
	33-80	Loam*	CL* , CL-ML, ML	A-6*, A-4	0-1	0-5	85-100	80-97	70-90	50-75	20-35	3-19
MorA:												
Milford---------	0-13	Mucky silty clay*.	CH* , CL	A-7*	0	0	100	100	95-100	90-95	45-65	20-40
	13-17	Silty clay*	CH* , CL	A-7*	0	0	100	100	95-100	90-95	45-55	25-30
	17-28	Silty clay loam*	CL*	A-7*	0	0	100	95-100	90-100	80-95	40-50	20-25
	28-80	Silt loam*	CL*	A-6*	0	0	95-100	90-100	80-100	65-90	30-35	10-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
MphA:												
Milford---------	0-11	Silty clay loam*	CL*	A-6*, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	11-29	Silty clay*, silty clay loam, clay loam.	CL* , CH	A-7*	0	0	100	95-100	85-100	60-95	40-55	20-30
	29-43	Silty clay loam*, clay loam, silty clay.	CL*	A-7*	0	0	100	95-100	85-100	60-95	40-50	20-30
	43-80	Stratified sand to silt loam*.	CL* , CL-ML	A-6*, A-4	0	0	95-100	90-100	50-95	40-70	20-30	5-15
MprA:												
Milford---------	0-13	Silty clay loam*	CL*	A-6*, A-7	0	0	100	95-100	90-100	80-95	35-49	15-25
	13-49	Silty clay*, silty clay loam, clay loam.	CL* , CH	A-7*, A-6	0	0	100	95-100	90-100	70-95	35-55	15-30
	49-80	Clay loam*, loam, silty clay loam.	CL*	A-6*, A-4	0-1	0-5	90-100	85-95	75-90	50-75	30-40	10-20
MryA:												
Millgrove-------	0-8	Silty clay loam*, silt loam, loam.	CL*	A-6*, A-7-6	0	0	85-100	80-97	75-95	70-90	30-50	10-30
	8-15	Silty clay loam*, silt loam, loam.	CL*	A-6*, A-7-6	0	0	85-100	80-97	75-95	70-90	30-50	10-30
	15-32	Clay loam*, sandy clay loam, loam.	CL* , SC	A-6*, A-4, A-7-6	0	0	85-100	80-97	70-95	40-75	25-50	5-30
	32-48	Gravelly loam*, very gravelly sandy loam, gravelly clay loam, sandy clay loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-4, A-2	0-1	0-5	60-100	45-90	35-80	30-60	20-45	4-20
	48-80	Stratified fine sand to gravelly sandy loam to very gravelly loam*.	SC-SM* , CL-ML, ML, SM, SC, CL	A-4*, A-2	0-1	0-5	60-100	45-85	30-70	25-55	5-25	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
MumC2:												
Morley----------	0-9	Silt loam*	CL* , CL-ML	A-4*, A-6	0	0	95-100	95-100	85-100	55-90	23-40	4-15
	9-20	Clay*, silty clay, clay loam.	CH* , CL	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-90	45-60	25-35
	20-29	Clay loam*, silty clay, clay.	CL* , CH	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-85	40-58	20-33
	29-36	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25
	36-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25
MumD2:												
Morley----------	0-9	Silt loam*	CL* , CL-ML	A-4*, A-6	0	0	95-100	95-100	85-100	55-90	23-40	4-15
	9-20	Clay*, silty clay, clay loam.	CH* , CL	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-90	45-60	25-35
	20-29	Clay loam*, silty clay, clay.	CL* , CH	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-85	40-58	20-33
	29-36	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25
	36-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25
MvbC3:												
Morley----------	0-7	Clay loam*	CL*	A-6*, A-7-6	0	0-5	95-100	92-98	85-98	60-85	30-50	10-30
	7-20	Clay*, silty clay, clay loam.	CH* , CL	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-90	45-60	25-35
	20-29	Clay loam*, silty clay, clay.	CL* , CH	A-7-6*	0-1	0-5	95-100	85-98	80-95	70-85	40-58	20-33
	29-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25
Mississinewa----	0-5	Clay loam*	CL*	A-6*, A-7-6	0-1	0-5	98-100	92-98	85-95	60-85	30-50	11-30
	5-10	Clay loam*, clay, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	92-98	85-95	70-90	37-54	20-33
	10-14	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	85-98	85-95	70-85	30-54	11-33
	14-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	98-100	85-98	80-95	70-85	30-45	11-26
MvbD3:												
Morley----------	0-7	Clay loam*	CL*	A-6*, A-7-6	0	0-5	95-100	92-98	85-98	60-85	30-50	10-30
	7-20	Clay*, silty clay, clay loam.	CH* , CL	A-7-6*	0-1	0-5	95-100	92-98	80-95	70-90	45-60	25-35
	20-29	Clay loam*, silty clay, clay.	CL* , CH	A-7-6*	0-1	0-5	95-100	85-98	80-95	70-85	40-58	20-33
	29-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	95-100	85-98	80-95	70-85	30-45	11-25

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MvbD3:												
Mississinewa----	0-5	Clay loam*	CL*	A-6*, A-7-6	0-1	0-5	98-100	92-98	85-95	60-85	30-50	11-30
	5-10	Clay loam*, clay, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	92-98	85-95	70-90	37-54	20-33
	10-14	Clay loam*, silty clay loam.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	85-98	85-95	70-85	30-54	11-33
	14-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	98-100	85-98	80-95	70-85	30-45	11-26
MvxA:												
Mountpleasant---	0-8	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	90-100	80-100	65-90	23-40	3-17
	8-23	Clay*, silty clay loam, clay loam.	CL* , CH	A-7-6*, A-6	0	0	90-100	85-100	85-100	60-90	35-60	15-38
	23-58	Loam*, clay loam	CL* , CL-ML	A-6*, A-4, A-7-6	0-1	0-5	90-100	80-95	70-85	50-80	25-50	6-30
	58-86	Loam*	CL* , CL-ML	A-4*, A-6	0-1	0-5	85-100	80-90	70-80	50-65	25-35	4-19
	86-110	Stratified very gravelly loamy coarse sand to sandy clay loam*.	SC* , GC-GM, SM, SP-SM	A-2-4*, A-1-a, A-2	0-1	0-5	30-90	25-85	15-60	0-35	0-40	NP-20
	110-118	Stratified very gravelly coarse sand to sand to extremely gravelly loamy coarse sand*.	SP-SM* , GP, SC-SM, SP	A-1-b*, A-2-4, A-3	0-1	0-5	45-85	20-85	5-55	0-25	0-10	NP-2
MvxB2:												
Mountpleasant---	0-8	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	90-100	80-100	65-90	23-40	3-17
	8-23	Clay*, silty clay loam, clay loam.	CL* , CH	A-7-6*, A-6	0	0	90-100	85-100	85-100	60-90	35-60	15-38
	23-58	Loam*, clay loam	CL* , CL-ML	A-6*, A-4, A-7-6	0-1	0-5	90-100	80-95	70-85	50-80	25-50	6-30
	58-86	Loam*	CL* , CL-ML	A-4*, A-6	0-1	0-5	85-100	80-90	70-80	50-65	25-35	4-19
	86-110	Stratified very gravelly loamy coarse sand to sandy clay loam*.	SC* , GC-GM, SM, SP-SM	A-2-4*, A-1-a	0-1	0-5	30-90	25-85	15-60	0-35	0-40	NP-20
	110-118	Stratified very gravelly coarse sand to sand to extremely gravelly loamy coarse sand*.	SP-SM* , GP, SC-SM, SP	A-1-b*, A-2-4, A-3	0-1	0-5	45-85	20-85	5-55	0-25	0-10	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
MvxC2:												
Mountpleasant---	0-8	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	90-100	80-100	65-90	23-40	3-17
	8-23	Clay*, silty clay loam, clay loam.	CL* , CH	A-7-6*, A-6	0	0	90-100	85-100	85-100	60-90	35-60	15-38
	23-58	Loam*, clay loam	CL* , CL-ML	A-6*, A-4, A-7-6	0-1	0-5	90-100	80-95	70-85	50-80	25-50	6-30
	58-86	Loam*	CL* , CL-ML	A-4*, A-6	0-1	0-5	85-100	80-90	70-80	50-65	25-35	4-19
	86-110	Stratified very gravelly loamy coarse sand to sandy clay loam*.	SC* , GC-GM, SM, SP-SM	A-2-4*, A-1-a	0-1	0-5	30-90	25-85	15-60	0-35	0-40	NP-20
	110-118	Stratified very gravelly coarse sand to sand to extremely gravelly loamy coarse sand*.	SP-SM* , GP, SC-SM, SP	A-1-b*, A-2-4, A-3	0-1	0-5	45-85	20-85	5-55	0-25	0-10	NP-2
MwzAN:												
Muskego---------	0-9	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---
	9-27	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---
	27-80	Coprogenous material*.	OL*	A-5*	0	0	95-100	95-100	85-100	75-95	40-50	2-8
MwzAU:												
Muskego---------	0-9	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---
	9-27	Muck*	PT*	A-8*	0	0	100	100	100	90-100	---	---
	27-80	Coprogenous material*.	OL*	A-5*	0	0	95-100	95-100	85-100	75-95	40-50	2-8

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
ObxA:												
Ockley----------	0-10	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	10-15	Silt loam*	CL* , ML, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	15-18	Silt loam*, silty clay loam.	CL* , CL-ML	A-6*, A-4, A-7-6	0	0-1	90-100	85-100	70-100	50-95	20-50	5-35
	18-37	Clay loam*, sandy clay loam, loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	37-49	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC* , CL, ML, SM	A-6*, A-2, A-4, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM* , GP, GW-GM, SW	A-1-a*	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP
ObxB2:												
Ockley----------	0-9	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	9-16	Silt loam*, silty clay loam.	CL* , CL-ML	A-6*, A-4, A-7-6	0	0-1	90-100	85-100	70-100	50-95	20-50	5-35
	16-34	Clay loam*, sandy clay loam, loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	34-48	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC* , CL, ML, SM	A-6*, A-2, A-4, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	48-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM* , GP, GW-GM, SW	A-1-a*	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP
PgaA:												
Pella-----------	0-11	Silty clay loam*	CL*	A-7*	0	0	100	95-100	90-100	85-95	40-50	15-25
	11-14	Silty clay loam*	CL*	A-7*	0	0	100	95-100	90-100	85-95	40-50	15-25
	14-29	Silty clay loam* silty clay.	CL* , CH	A-6*, A-7	0	0	100	95-100	90-100	85-95	40-55	15-30
	29-34	Silt loam*, loam, silty clay loam.	CL*	A-6*, A-7	0	0-3	95-100	90-100	85-95	60-90	25-45	10-25
	34-80	Stratified sandy loam to silty clay loam*.	CL* , CL-ML, SC, SC-SM	A-6*, A-2, A-4	0-1	0-5	90-100	70-100	50-100	30-85	20-35	7-20

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
PkkA:												
Pewamo----------	0-10	Silty clay loam*	CL*	A-7*, A-6	0	0-5	90-100	85-100	75-100	70-90	35-50	15-25
	10-34	Silty clay*, silty clay loam, clay.	CL* , CH	A-7*	0	0-5	95-100	85-98	75-98	75-95	40-55	20-35
	34-57	Clay*, clay loam, silty clay loam.	CL* , CH	A-7*	0	0-5	95-100	85-98	75-98	70-95	40-55	20-35
	57-80	Clay loam*, silty clay loam.	CL*	A-7*	0	0-5	95-100	80-98	75-98	65-90	40-50	15-25
Pmg:												
Pits, gravel.												
Pml:												
Pits, quarry.												
ReyA:												
Rensselaer------	0-11	Loam*	CL* , CL-ML, ML	A-6*, A-4	0	0	100	95-100	75-95	50-75	20-40	3-20
	11-15	Loam*	CL* , CL-ML, ML	A-6*, A-4	0	0	100	95-100	75-95	50-75	20-40	3-20
	15-38	Clay loam*, silty clay loam, loam.	CL* , SC	A-6*, A-4, A-7-6	0	0	100	95-100	75-95	45-75	30-50	5-35
	38-42	Loam* sandy clay loam, sandy loam.	SC* , CL, ML, SM	A-4*, A-2, A-6	0	0	100	95-100	70-95	25-65	20-40	3-20
	42-80	Stratified fine sand to silt loam*.	SC* , CL, ML, SP-SM	A-4*, A-1, A-2, A-3	0	0	90-100	85-100	40-100	5-90	0-30	NP-15
RroAH:												
Ross------------	0-8	Loam*, silt loam	CL-ML* , CL, ML	A-4*, A-6	0	0	90-100	90-100	80-100	60-95	20-35	2-12
	8-29	Loam*, silt loam	CL-ML* , ML, CL	A-4*, A-6	0	0	90-100	90-100	80-100	60-95	20-35	2-12
	29-40	Loam*, silt loam, silty clay loam, sandy loam.	CL* , CL-ML, ML	A-6*, A-4, A-7	0	0	90-100	85-100	70-100	55-95	22-45	3-20
	40-80	Stratified gravelly sandy loam to silt loam*.	CL* , GM, ML, SM	A-4*, A-2, A-6	0	0-5	65-100	50-100	30-100	25-80	0-30	NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
RroAH:												
Lash------------	0-10	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	100	95-100	85-100	50-70	20-40	3-15
	10-14	Loam*, silt loam	CL* , CL-ML	A-4*, A-6	0	0	100	95-100	85-100	50-70	20-40	3-15
	14-52	Loam* sandy loam, silt loam.	CL* , ML, SC, SM	A-4*, A-2-4, A-6	0	0	100	95-100	80-100	25-85	0-40	NP-15
	52-80	Stratified fine sand to sandy loam*.	SC-SM* , SC, SM, SP-SM	A-2-4*, A-3, A-4	0	0	100	80-100	60-100	5-45	0-20	NP-10
RrwB:												
Rawson----------	0-10	Loam*	CL* , CL-ML, ML	A-4*, A-6	0	0-3	90-100	80-100	75-85	45-65	15-35	2-15
	10-20	Loam*, fine sandy loam, gravelly sandy clay loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4, A-7-6	0-1	0-5	85-100	70-100	45-90	30-60	23-45	4-20
	20-39	Sandy clay loam*, loam, gravelly clay loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4, A-7-6	0-1	0-5	85-100	70-100	45-90	30-60	23-50	4-26
	39-43	Silty clay loam*, clay loam, clay.	CL* , CH	A-7-6*, A-6	0-1	0-5	98-100	85-98	85-95	70-85	32-54	11-33
	43-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	98-100	85-98	85-95	70-85	30-45	11-26
SgmAH:												
Shoals----------	0-8	Silt loam*, loam	CL* , CL-ML, ML	A-6*, A-4	0	0	100	95-100	85-100	50-100	20-40	3-20
	8-13	Loam*, silt loam	CL* , CL-ML, ML	A-6*, A-4	0	0	100	95-100	85-100	50-100	20-40	3-20
	13-30	Loam*, silt loam, clay loam.	CL* , CL-ML, ML	A-6*, A-4, A-7-6	0	0	100	95-100	75-100	50-100	20-50	3-30
	30-80	Stratified sand to silt loam*.	CL-ML* , ML, SM, SP-SM, CL, SC	A-4*, A-2-4, A-2-6, A-6	0	0-3	90-100	78-100	50-100	5-100	0-40	NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
SmsAH:												
Sloan-----------	0-9	Silt loam*, silty clay loam.	CL* , CL-ML, ML	A-6*, A-4	0	0	100	92-100	85-100	70-95	23-40	3-20
	9-15	Silt loam*, silty clay loam.	CL* , CL-ML, ML	A-6*, A-4	0	0	100	92-100	85-100	70-95	23-40	3-20
	15-34	Silty clay loam*, clay loam, silt loam.	CL*	A-6*, A-4, A-7	0	0	100	92-100	85-100	70-95	30-45	10-25
	34-45	Clay loam*, silty clay loam, silt loam.	CL*	A-6*, A-4, A-7	0	0	100	80-100	75-100	65-95	30-45	10-25
	45-80	Stratified sandy loam to loam to silt loam to silty clay loam*.	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	70-100	60-95	40-90	20-40	3-15
SnlA:												
Southwest-------	0-10	Silt loam*	CL* , ML	A-4*, A-6	0	0	100	100	95-100	75-100	27-39	3-15
	10-23	Silty clay loam*, silt loam.	CL* , ML	A-4*, A-6	0	0	100	100	95-100	75-100	23-49	3-27
	23-34	Silty clay loam*, silt loam, loam.	CL* , CL-ML, ML	A-6*, A-7-6, A-4	0	0	95-100	92-100	85-100	50-100	25-49	3-27
	34-45	Silty clay loam*, silt loam, loam.	CL* , CL-ML, ML	A-6*, A-4, A-7-6	0	0	95-100	92-100	85-100	50-100	23-45	3-23
	45-75	Silty clay loam*, silt loam.	CL* , CL-ML, ML	A-6*, A-4, A-7-6	0	0	95-100	92-100	85-100	65-100	25-45	3-23
	75-80	Silt loam*, loam, clay loam.	CL* , CL-ML, ML	A-6*, A-4, A-7-6	0	0-1	95-100	92-100	75-100	50-100	20-41	3-20
SvsE2:												
Strawn----------	0-7	Loam*, silt loam	CL* , CL-ML, ML	A-6*, A-4	0	0	95-100	90-100	85-100	60-85	20-40	3-20
	7-22	Clay loam*, silty clay loam, loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	80-95	75-95	50-85	25-50	10-32
	22-80	Loam*, silt loam, fine sandy loam.	CL* , CL-ML, ML, SC	A-4*, A-6	0-1	0-5	90-100	80-95	60-95	40-85	15-35	3-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
SvsE2:												
Belmore---------	0-11	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	85-100	60-95	50-80	20-40	NP-15
	11-25	Sandy clay loam*, clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-95	55-95	40-70	17-45	4-30
	25-36	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	SC* , CL, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	36-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-4*, A-1, A-2	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10
SvsG:												
Strawn----------	0-7	Loam*, silt loam	CL* , CL-ML, ML	A-6*, A-4	0	0	95-100	90-100	85-100	60-85	20-40	3-20
	7-22	Clay loam*, silty clay loam, loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	80-95	75-95	50-90	25-50	10-32
	22-80	Loam*, silt loam, fine sandy loam.	CL* , CL-ML, ML, SC	A-4*, A-6	0-1	0-5	90-100	80-95	60-95	40-85	15-35	3-15
Belmore---------	0-11	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	85-100	85-100	60-95	50-80	20-40	NP-15
	11-25	Sandy clay loam*, clay loam, sandy loam.	CL* , SC, SC-SM	A-6*, A-4	0	0	85-100	80-95	55-95	40-70	17-45	4-30
	25-36	Gravelly sandy clay loam*, gravelly clay loam, gravelly sandy loam.	SC* , CL, SC-SM	A-6*, A-2, A-4	0	0-5	80-100	50-80	30-80	15-65	20-50	5-30
	36-80	Gravelly sandy loam*, gravelly loam, very gravelly sandy loam.	SC-SM* , SC, SM	A-4*, A-1, A-2	0	0-5	80-100	45-80	30-55	15-40	5-25	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ThrA:												
Treaty----------	0-10	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	85-100	35-55	11-31
	10-14	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	85-100	35-55	11-31
	14-36	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	75-100	35-55	11-31
	36-59	Loam*, clay loam, silty clay loam.	CL* , CH, CL-ML	A-6*, A-4, A-7-6	0	0	95-100	85-97	80-95	65-95	25-55	6-31
	59-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	95-100	85-97	65-90	40-70	15-30	3-15
Uam:												
Udorthents------	0-60	Loam*, clay loam	CL*	A-6*, A-4	0	0-3	85-100	80-100	70-100	55-95	25-40	8-15
UccA:												
Urban land.												
Crosby----------	0-8	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	5-20
	14-28	Silty clay loam*, clay loam, silty clay.	CL* , CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL* , ML, SC, SM	A-6*, A-4	0-1	0-3	85-100	80-98	65-90	40-70	15-45	3-25
	36-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-19
Treaty----------	0-10	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	85-100	35-55	11-31
	10-14	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	85-100	35-55	11-31
	14-37	Silty clay loam*, silt loam.	CL* , CH	A-7-6*, A-6	0	0	100	100	90-100	75-100	35-55	11-31
	37-48	Loam*, clay loam, silty clay loam.	CL* , CH, CL-ML	A-6*, A-4, A-7-6	0	0	95-100	85-97	80-95	65-95	25-55	6-31
	48-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	95-100	85-97	65-90	40-70	15-30	3-15
Ucu:												
Udorthents------	0-60	Stratified sand to very gravelly coarse sandy loam*.	SP-SM* , SM, SP	A-1*	0	0-5	50-90	30-80	15-45	0-15	0-21	NP-4

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
UdmA:												
Urban land.												
Blount----------	0-7	Silt loam*	CL*	A-6*, A-4	0	0	95-100	95-100	90-100	75-95	25-40	8-20
	7-23	Silty clay*, silty clay loam, clay.	CL* , CH	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	75-85	35-60	15-35
	23-30	Silty clay loam*, clay loam.	CL* , CH, MH, ML	A-7*, A-6	0-1	0-5	95-100	90-100	80-90	70-90	35-55	10-30
	30-42	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
	42-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-5	90-100	90-100	80-100	70-90	30-45	10-25
Pewamo----------	0-10	Silty clay loam*	CL*	A-7*, A-6	0	0-5	90-100	85-100	75-100	70-90	35-50	15-25
	10-34	Silty clay*, silty clay loam, clay.	CL* , CH	A-7*	0	0-5	95-100	85-98	75-98	75-95	40-55	20-35
	34-57	Clay*, clay loam, silty clay loam.	CL* , CH	A-7*	0	0-5	95-100	85-98	75-98	75-95	40-55	20-35
	57-80	Clay loam*, silty clay loam.	CL*	A-7*	0	0-5	95-100	80-98	75-98	70-90	40-50	15-25
UemB:												
Urban land.												
Fox-------------	0-10	Loam*	CL-ML* , CL, ML	A-4*	0	0	95-100	85-100	70-90	55-85	15-25	3-8
	10-19	Clay loam*, sandy clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	60-100	30-95	15-80	22-45	10-25
	19-31	Gravelly sandy clay loam*, clay loam, gravelly loam.	SC* , CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-97	30-85	15-65	22-45	10-25
	31-80	Stratified extremely gravelly coarse sand to very gravelly coarse sand to sand*.	SP-SM* , GP, GP-GM, SP	A-1*	0-3	0-10	30-100	20-95	10-40	2-10	0-14	NP
UetB:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
UetB:												
Glynwood--------	0-9	Silt loam*	CL* , CL-ML	A-6*, A-4	0	0	95-100	92-100	80-100	55-90	23-40	4-20
	9-23	Clay*, clay loam, silty clay loam.	CL* , CH	A-7*, A-6	0	0-5	95-100	85-100	75-100	65-95	40-60	15-35
	23-32	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-49	11-26
	32-80	Clay loam*, silty clay loam.	CL*	A-6*	0-1	0-5	95-100	80-98	75-95	65-90	30-45	11-26
UfuA:												
Urban land.												
Millgrove-------	0-8	Silty clay loam*, silt loam, loam.	CL*	A-6*, A-7-6	0	0	85-100	80-97	75-95	70-90	30-50	10-30
	8-15	Silty clay loam*, silt loam, loam.	CL*	A-6*, A-7-6	0	0	85-100	80-97	75-95	70-90	30-50	10-30
	15-32	Clay loam*, sandy clay loam, loam.	CL* , SC	A-6*, A-4, A-7-6	0	0	85-100	80-97	70-95	40-75	25-50	5-30
	32-48	Gravelly loam*, very gravelly sandy loam, gravelly clay loam.	SC* , CL, CL-ML, SC-SM	A-6*, A-2, A-4	0-1	0-5	60-100	45-90	35-80	30-60	20-45	4-20
	48-80	Stratified fine sand to gravelly sandy loam to very gravelly loam*.	SC-SM* , SC, ML, SM, CL-ML, CL	A-4*, A-2	0-1	0-5	60-100	45-85	30-70	25-55	5-25	NP-10
UhaB:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UhaB:												
Wawaka----------	0-9	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	3-17
	9-35	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	35-39	Loam*, gravelly loam, clay loam.	CL* , CL-ML, GC, SC	A-6*, A-4	0-1	0-5	70-95	70-85	55-80	40-65	20-40	5-25
	39-84	Gravelly loam*, loam, clay loam.	SC* , CL, GC, ML	A-4*, A-6	0-1	0-5	70-95	65-85	55-75	40-55	20-40	3-25
	84-96	Stratified very gravelly coarse sandy loam to gravelly sandy clay loam*.	SC* , GC, GM, SM	A-2*, A-1-b	0-1	0-5	50-90	30-85	25-65	15-35	15-35	NP-20
	96-99	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM* , GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-10	NP-2
Miami-----------	0-8	Loam*, silt loam	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	55-85	20-37	3-17
	8-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-3	90-98	85-98	80-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	20-37	3-22
	36-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	90-98	85-98	65-90	40-70	15-30	2-15
W:												
Water.												
WbgB3:												
Wapahani--------	0-5	Clay loam*, loam	CL*	A-6*, A-7-6	0-1	0-3	95-100	85-100	80-100	60-85	30-50	12-32
	5-16	Clay loam*, loam	CL*	A-6*, A-7-6	0-1	0-3	90-100	85-100	75-95	55-75	25-50	7-32
	16-20	Loam*, fine sandy loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	15-40	NP-22
	20-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	90-98	85-98	65-95	40-70	15-30	NP-15
WbgC3:												
Wapahani--------	0-5	Clay loam*, loam	CL*	A-6*, A-7-6	0-1	0-3	95-100	85-100	80-100	60-85	30-50	12-32
	5-16	Clay loam*, loam	CL*	A-6*, A-7-6	0-1	0-3	90-100	85-100	75-95	55-75	30-50	12-32
	16-20	Loam*, fine sandy loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	20-40	5-22
	20-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-3	90-98	85-98	65-95	40-70	15-30	3-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
WdrA:												
Wawaka----------	0-9	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	3-17
	9-35	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	35-39	Loam*, gravelly loam, clay loam.	CL* , CL-ML, GC, SC	A-6*, A-4	0-1	0-5	70-95	70-90	55-80	40-65	20-40	5-25
	39-84	Gravelly loam*, loam, clay loam.	CL* , GC, ML, SC	A-6*, A-4	0-1	0-5	70-95	65-90	55-75	40-55	20-40	3-25
	84-96	Stratified very gravelly coarse sandy loam to gravelly sandy clay loam*.	SC* , GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-90	30-85	25-65	10-35	15-35	NP-20
	96-99	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM* , GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-10	NP-2
WdrB2:												
Wawaka----------	0-9	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	3-17
	9-35	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	35-39	Loam*, gravelly loam, clay loam.	CL* , CL-ML, GC, SC	A-6*, A-4	0-1	0-5	70-95	70-85	55-80	40-65	20-40	5-25
	39-84	Gravelly loam*, loam, clay loam.	CL* , GC, ML, SC	A-6*, A-4	0-1	0-5	70-95	65-85	55-75	40-55	20-40	3-25
	84-96	Stratified very gravelly coarse sandy loam to gravelly sandy clay loam*.	SC* , GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-90	30-85	25-65	10-35	15-35	NP-20
	96-99	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM* , GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-10	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WdrC2:												
Wawaka----------	0-9	Silt loam*	CL* , ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	3-17
	9-35	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	35-39	Loam*, gravelly loam, clay loam.	CL* , CL-ML, GC, SC	A-6*, A-4	0-1	0-5	70-95	70-85	55-80	40-65	20-40	5-25
	39-84	Gravelly loam*, loam, clay loam.	CL* , GC, ML, SC	A-6*, A-4	0-1	0-5	70-95	65-85	55-75	40-55	20-40	3-25
	84-96	Stratified very gravelly coarse sandy loam to gravelly sandy clay loam*.	SC* , GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-90	30-85	25-65	10-35	15-35	NP-20
	96-99	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM* , GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-10	NP-2
WonA:												
Williamstown----	0-9	Silt loam*	CL* , CL-ML, ML	A-4*, A-6	0	0	95-100	85-100	85-100	55-85	20-40	3-15
	9-33	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0	0-1	90-100	85-100	75-98	55-85	30-50	10-30
	33-37	Loam*, fine sandy loam.	CL* , CL-ML, SC, SC-SM	A-6*, A-4	0	0-1	90-100	85-98	65-95	40-70	20-40	4-25
	37-80	Loam*, fine sandy loam.	CL* , ML, SC, SM	A-4*, A-6	0-1	0-2	90-100	85-98	65-90	40-70	15-35	3-15

Table 17a.--Physical Properties of the Soils

[Where three values are listed, the first is the low value, the second is the representative value, and the third is the high value. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
BdhAH:								
Bellcreek------	0-10	5-14-25	40-48-60	30-38-40	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.20-0.23	3.00-4.50-5.90
	10-48	5-14-25	35-43-55	35-42-50	1.40-1.50-1.60	0.20-0.40-0.60	0.11-0.16-0.20	6.00-7.50-8.90
	48-64	10-16-25	35-46-55	30-38-45	1.40-1.50-1.60	0.20-0.40-0.60	0.11-0.16-0.20	3.00-6.50-8.90
	64-80	25-52-80	15-30-45	5-18-30	1.40-1.55-1.70	0.60-1.30-2.00	0.08-0.12-0.16	0.00-1.50-2.90
BdlC2:								
Belmore--------	0-9	30-39-50	40-46-55	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.16-0.18	0.00-1.50-2.90
	9-21	40-50-65	20-25-35	15-25-30	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90
	21-41	40-51-65	15-22-35	18-26-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	41-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
BdmA:								
Belmore--------	0-9	20-31-40	40-54-60	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.19-0.24	0.00-1.50-2.90
	9-14	20-31-40	40-52-60	10-17-22	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.19-0.24	0.00-1.50-2.90
	14-21	35-42-60	20-30-35	15-28-35	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-2.50-5.90
	21-41	40-51-65	15-21-35	18-28-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	41-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
BdmB2:								
Belmore--------	0-9	20-31-40	40-54-60	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.19-0.24	0.00-1.50-2.90
	9-21	35-42-60	20-30-35	15-28-35	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-2.50-5.90
	21-41	40-51-65	15-21-35	18-28-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	41-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
BdsAN:								
Benadum--------	0-10	5-10-20	55-66-75	20-24-27	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	10-21	5-12-20	50-60-70	20-28-35	1.40-1.55-1.70	0.60-1.30-2.00	0.18-0.19-0.20	0.00-3.50-5.90
	21-44	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	2.00-4.00-6.00	0.35-0.40-0.45	0.00-1.50-2.90
	44-80	0-4 -10	60-70-80	18-26-35	0.30-0.70-1.10	0.06-0.13-0.20	0.18-0.21-0.24	3.00-4.50-5.90
BdsAU:								
Benadum--------	0-10	5-10-20	55-66-75	20-24-27	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	10-21	5-12-20	50-60-70	20-28-35	1.40-1.55-1.70	0.60-1.30-2.00	0.18-0.19-0.20	0.00-3.50-5.90
	21-44	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	2.00-4.00-6.00	0.35-0.40-0.45	0.00-1.50-2.90
	44-80	0-4 -10	60-70-80	18-26-35	0.30-0.70-1.10	0.06-0.13-0.20	0.18-0.21-0.24	3.00-4.50-5.90
BltA:								
Blount---------	0-7	10-23-30	45-58-75	12-19-26	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-23	10-17-25	30-41-55	35-42-48	1.40-1.55-1.70	0.06-0.33-0.60	0.12-0.16-0.19	3.00-5.50-8.90
	23-30	10-19-30	31-46-55	27-35-39	1.50-1.60-1.70	0.06-0.33-0.60	0.10-0.14-0.17	3.00-4.50-5.90
	30-42	15-24-30	31-43-55	27-33-39	1.60-1.70-1.80	0.01-0.13-0.20	0.01-0.04-0.07	3.00-4.50-5.90
	42-80	15-24-30	31-43-55	27-33-39	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
BmlA:								
Blount---------	0-7	10-23-30	45-58-75	12-19-26	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-23	10-17-25	30-41-55	35-42-48	1.40-1.55-1.70	0.06-0.33-0.60	0.12-0.16-0.19	3.00-5.50-8.90
	23-30	10-19-30	31-46-55	27-35-39	1.50-1.60-1.70	0.06-0.33-0.60	0.10-0.14-0.17	3.00-4.50-5.90
	30-42	15-24-30	31-43-55	27-33-39	1.60-1.70-1.80	0.01-0.13-0.20	0.01-0.04-0.07	3.00-4.50-5.90
	42-80	15-24-30	31-43-55	27-33-39	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
Del Rey--------	0-9	10-19-25	50-62-75	12-19-26	1.30-1.40-1.50	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90
	9-29	5-8 -15	40-54-60	35-38-45	1.40-1.53-1.65	0.06-0.13-0.20	0.12-0.16-0.20	3.00-4.50-5.90
	29-37	5-11-25	45-59-70	22-30-39	1.50-1.60-1.70	0.06-0.13-0.20	0.09-0.14-0.20	3.50-4.50-5.90
	37-80	5-11-25	45-62-70	22-28-33	1.50-1.60-1.70	0.06-0.13-0.20	0.09-0.10-0.11	0.00-3.50-5.90
CdgC3:								
Casco----------	0-8	40-49-60	20-26-30	20-25-30	1.40-1.45-1.50	0.60-1.30-2.00	0.18-0.20-0.22	0.00-1.50-2.90
	8-16	40-51-65	5-10-25	30-39-45	1.55-1.60-1.65	0.60-1.30-2.00	0.09-0.14-0.19	3.00-4.50-5.90
	16-80	80-87-100	0-10-15	0-3-5	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
CudA:								
Crosby---------	0-8	15-20-30	50-65-75	10-15-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90
	11-14	15-21-30	50-55-65	20-24-26	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90
	14-28	10-19-30	35-43-55	35-38-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90
	36-80	30-42-60	28-40-50	10-18-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
DdxA:								
Digby----------	0-12	20-31-40	45-53-60	12-16-20	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90
	12-20	25-44-55	20-28-40	18-28-35	1.45-1.58-1.70	0.60-1.30-2.00	0.12-0.15-0.18	0.00-2.50-5.90
	20-31	30-51-65	15-22-35	18-26-35	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.12-0.15	0.00-2.50-5.90
	31-41	30-52-65	15-22-35	15-25-35	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.12-0.15	0.00-2.50-5.90
	41-80	55-70-87	10-21-30	3-9-15	1.50-1.60-1.70	6.00-13.00-20.00	0.02-0.07-0.12	0.00-1.50-2.90
Haney----------	0-8	20-31-40	45-53-60	12-16-20	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90
	8-15	20-31-40	45-53-60	12-16-20	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90
	15-36	25-44-55	20-28-40	20-28-35	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.13-0.18	0.00-2.50-5.90
	36-45	25-45-60	20-30-40	18-25-35	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.12-0.15	0.00-2.50-5.90
	45-80	55-70-85	10-21-30	3-9-18	1.50-1.60-1.70	6.00-13.00-20.00	0.02-0.07-0.12	0.00-1.50-2.90
EdxA:								
Eldean---------	0-7	20-25-30	45-55-65	15-20-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	7-10	20-32-40	40-46-60	15-22-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	10-26	20-33-55	10-25-40	35-42-48	1.40-1.50-1.60	0.20-1.10-2.00	0.08-0.13-0.18	3.00-5.50-8.90
	26-31	20-46-70	10-25-40	18-29-40	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.11-0.14	0.00-2.50-5.90
	31-80	70-85-98	0-10-22	2-5-8	1.70-1.90-2.10	6.00-39.96-60.00	0.01-0.03-0.04	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
EdxB2:								
Eldean---------	0-7	20-25-30	45-55-65	15-20-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	7-23	20-33-55	10-25-40	35-42-48	1.40-1.50-1.60	0.20-1.10-2.00	0.08-0.13-0.18	3.00-5.50-8.90
	23-30	20-46-70	10-25-40	18-29-40	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.11-0.14	0.00-2.50-5.90
	30-80	70-85-98	0-10-22	2-5-8	1.70-1.90-2.10	6.00-39.96-60.00	0.01-0.03-0.04	0.00-1.50-2.90
EdxC2:								
Eldean---------	0-7	20-25-30	45-55-65	15-20-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	7-23	20-33-55	10-25-40	35-42-48	1.40-1.50-1.60	0.20-1.10-2.00	0.08-0.13-0.18	3.00-5.50-8.90
	23-30	20-46-70	10-25-40	18-29-40	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.11-0.14	0.00-2.50-5.90
	30-80	70-85-98	0-10-22	2-5-8	1.70-1.90-2.10	6.00-39.96-60.00	0.01-0.03-0.04	0.00-1.50-2.90
EdxD2:								
Eldean---------	0-7	20-25-30	45-55-65	15-20-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	7-23	20-33-55	10-25-40	35-42-48	1.40-1.50-1.60	0.20-1.10-2.00	0.08-0.13-0.18	3.00-5.50-8.90
	23-30	20-46-70	10-25-40	18-29-40	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.11-0.14	0.00-2.50-5.90
	30-80	70-85-98	0-10-22	2-5-8	1.70-1.90-2.10	6.00-39.96-60.00	0.01-0.03-0.04	0.00-1.50-2.90
EdxE2:								
Eldean---------	0-5	20-25-30	45-55-65	15-20-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	5-11	20-32-40	40-46-60	15-22-25	1.30-1.40-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	11-22	20-33-55	10-25-40	35-42-48	1.40-1.50-1.60	0.20-1.10-2.00	0.08-0.13-0.18	3.00-5.50-8.90
	22-39	20-46-70	10-25-40	18-29-40	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.11-0.14	0.00-2.50-5.90
	39-80	70-85-98	0-10-22	2-5-8	1.70-1.90-2.10	6.00-39.96-60.00	0.01-0.03-0.04	0.00-1.50-2.90
FexB2:								
Fox------------	0-10	25-38-50	30-47-55	10-15-20	1.35-1.45-1.55	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	10-19	25-44-50	20-29-40	18-27-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	19-31	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-2.50-5.90
	31-80	85-89-95	5-10-15	0-1-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
FexC2:								
Fox------------	0-10	25-38-50	30-47-55	10-15-20	1.35-1.45-1.55	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	10-19	25-44-50	20-29-40	18-27-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	19-31	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-2.50-5.90
	31-80	85-89-95	5-10-15	0-1-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
FgoB2:								
Fox------------	0-10	25-38-50	30-47-55	10-15-20	1.35-1.45-1.55	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	10-19	25-44-50	20-29-40	18-27-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	19-31	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-2.50-5.90
	31-80	85-89-95	5-10-15	0-1-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
FgoB2:								
Muncie---------	0-6	15-25-30	50-52-60	20-23-26	1.35-1.50-1.65	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	6-30	15-22-35	30-39-50	35-39-45	1.50-1.60-1.70	0.20-0.40-0.60	0.07-0.14-0.21	3.00-5.50-8.90
	30-37	15-25-30	30-42-50	27-34-40	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.13-0.18	3.00-4.50-5.90
	37-56	18-26-30	35-43-50	27-31-35	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	56-80	85-88-90	5-9 -13	2-4-5	1.70-1.90-2.10	6.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
FgoC2:								
Fox------------	0-10	25-38-50	30-47-55	10-15-20	1.35-1.45-1.55	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	10-19	25-44-50	20-29-40	18-27-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	19-31	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-2.50-5.90
	31-80	85-89-95	5-10-15	0-1-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
Muncie---------	0-6	15-25-30	50-52-60	20-23-26	1.35-1.50-1.65	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	6-30	15-22-35	30-39-50	35-39-45	1.50-1.60-1.70	0.20-0.40-0.60	0.07-0.14-0.21	3.00-5.50-8.90
	30-37	15-25-30	30-42-50	27-34-40	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.13-0.18	3.00-4.50-5.90
	37-56	18-26-30	35-43-50	27-31-35	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	56-80	85-88-90	5-9 -13	2-4-5	1.70-1.90-2.10	6.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
FgrC3:								
Fox------------	0-7	25-43-50	20-28-40	27-29-35	1.55-1.60-1.65	0.60-1.30-2.00	0.14-0.19-0.23	3.00-4.50-5.90
	7-23	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	23-80	85-91-95	3-7 -15	0-2-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
Muncie---------	0-5	15-22-33	40-47-55	27-31-35	1.40-1.53-1.65	0.20-0.40-0.60	0.14-0.18-0.21	3.00-4.50-5.90
	5-21	15-22-35	30-39-50	35-39-45	1.50-1.60-1.70	0.20-0.40-0.60	0.07-0.14-0.21	3.00-5.50-8.90
	21-26	15-25-30	30-42-50	27-34-40	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.13-0.18	3.00-4.50-5.90
	26-56	18-26-30	35-43-50	27-31-35	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	56-80	85-88-90	5-9 -13	2-4-5	1.70-1.90-2.10	6.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
FgrD3:								
Fox------------	0-7	25-43-50	20-28-40	27-29-35	1.55-1.60-1.65	0.60-1.30-2.00	0.14-0.19-0.23	3.00-4.50-5.90
	7-23	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	23-80	85-91-95	3-7 -15	0-2-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
Muncie---------	0-5	15-22-33	40-47-55	27-31-35	1.40-1.53-1.65	0.20-0.40-0.60	0.14-0.18-0.21	3.00-4.50-5.90
	5-21	15-22-35	30-39-50	35-39-45	1.50-1.60-1.70	0.20-0.40-0.60	0.07-0.14-0.21	3.00-5.50-8.90
	21-26	15-25-30	30-42-50	27-34-40	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.13-0.18	3.00-4.50-5.90
	26-56	18-26-30	35-43-50	27-31-35	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	56-80	85-88-90	5-9 -13	2-4-5	1.70-1.90-2.10	6.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
GlnAH:								
Gessie---------	0-10	20-29-35	50-51-60	15-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.14-0.19-0.24	0.00-1.50-2.90
	10-43	20-25-40	40-55-60	18-20-26	1.35-1.45-1.55	0.60-1.30-2.00	0.10-0.16-0.22	0.00-1.50-2.90
	43-80	30-42-90	5-45-55	5-13-20	1.40-1.55-1.70	0.60-3.30-6.00	0.05-0.14-0.22	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
GlnAH:								
Eel------------	0-10	15-24-35	45-52-60	20-24-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	10-22	15-35-45	30-40-55	20-25-32	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90
	22-34	15-35-45	30-40-55	20-25-32	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90
	34-42	15-45-55	20-35-55	15-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.22	0.00-1.50-2.90
	42-80	15-51-90	5-32-55	5-16-30	1.40-1.50-1.60	0.60-3.30-6.00	0.11-0.15-0.19	0.00-1.50-2.90
GlrB2:								
Glynwood-------	0-7	15-22-30	50-56-60	16-22-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-9	15-22-30	50-56-60	16-22-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-12	15-20-30	45-52-60	20-28-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.20-0.24	0.00-3.50-5.90
	12-23	10-16-25	30-39-50	35-45-55	1.45-1.55-1.65	0.20-0.40-0.60	0.12-0.16-0.18	3.00-5.50-8.90
	23-32	15-22-30	31-43-50	27-35-39	1.55-1.65-1.75	0.06-0.13-0.20	0.06-0.10-0.12	3.00-4.50-5.90
	32-80	15-22-30	35-46-55	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
GlyB3:								
Glynwood-------	0-5	20-22-30	35-46-50	27-32-38	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.20-0.23	3.00-4.50-5.90
	5-17	10-16-25	30-39-50	35-45-55	1.45-1.58-1.70	0.06-0.13-0.20	0.12-0.15-0.18	3.00-5.50-8.90
	17-20	15-22-30	31-43-50	27-35-39	1.55-1.65-1.75	0.06-0.13-0.20	0.06-0.10-0.12	3.00-4.50-5.90
	20-80	15-22-30	35-46-55	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
Mississinewa---	0-5	15-22-30	35-45-50	27-33-39	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.19-0.20	3.00-4.50-5.90
	5-10	15-21-25	30-40-50	35-39-50	1.40-1.53-1.65	0.20-0.40-0.60	0.07-0.12-0.17	3.00-5.50-8.90
	10-14	15-25-30	30-42-50	27-34-40	1.50-1.63-1.75	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	14-80	18-26-30	35-43-50	27-31-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
HtbAN:								
Houghton-------	0-80	0-4 -10	80-92-100	0-5-10	0.15-0.30-0.45	0.60-3.30-6.00	0.35-0.40-0.45	---
HtbAU:								
Houghton-------	0-80	0-4 -10	80-92-100	0-5-10	0.15-0.30-0.45	0.60-3.30-6.00	0.35-0.40-0.45	---
LdfAH:								
Lash-----------	0-10	30-42-55	35-44-55	10-14-18	1.30-1.40-1.50	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90
	10-14	30-42-55	35-44-55	10-14-18	1.30-1.40-1.50	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90
	14-52	30-42-60	30-46-55	5-12-18	1.40-1.50-1.60	2.00-4.00-6.00	0.14-0.18-0.21	0.00-1.50-2.90
	52-80	70-80-90	5-15-25	1-5-10	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90
LneAW:								
Lickcreek------	0-10	14-30-40	45-52-60	15-18-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90
	10-19	14-30-40	45-50-60	15-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90
	19-39	16-41-50	20-31-50	18-28-34	1.40-1.50-1.60	2.00-4.00-6.00	0.16-0.18-0.19	0.00-2.50-5.90
	39-54	30-51-70	15-26-40	15-23-30	1.50-1.60-1.70	2.00-4.00-6.00	0.12-0.15-0.17	0.00-1.50-2.90
	54-80	55-70-85	8-19-30	7-11-15	1.60-1.68-1.75	6.00-13.00-20.00	0.08-0.09-0.10	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
LshC3:								
Losantville----	0-7	20-30-40	30-39-50	27-31-35	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.18-0.19	3.00-4.50-5.90
	7-16	20-30-40	20-30-40	35-40-45	1.50-1.60-1.75	0.20-0.40-0.60	0.07-0.11-0.14	3.00-5.50-8.90
	16-80	30-40-45	30-40-50	18-20-26	1.75-1.85-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90
LshD3:								
Losantville----	0-7	20-30-40	30-39-50	27-31-35	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.18-0.19	3.00-4.50-5.90
	7-16	20-30-40	20-30-40	35-40-45	1.50-1.60-1.75	0.20-0.40-0.60	0.07-0.11-0.14	3.00-5.50-8.90
	16-80	30-40-45	30-40-50	18-20-26	1.75-1.85-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90
LteE:								
Lybrand--------	0-9	20-32-40	40-46-55	18-22-26	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-21	10-17-35	30-41-55	35-42-50	1.55-1.60-1.70	0.06-0.13-0.20	0.11-0.13-0.15	3.00-5.50-8.90
	21-33	10-17-35	30-41-55	35-42-50	1.55-1.60-1.70	0.06-0.13-0.20	0.11-0.13-0.15	3.00-5.50-8.90
	33-45	10-19-35	30-46-55	27-35-40	1.55-1.65-1.70	0.06-0.13-0.20	0.07-0.11-0.15	3.00-4.50-5.90
	45-80	10-19-40	33-49-60	27-32-40	1.60-1.70-1.80	0.06-0.13-0.20	0.04-0.08-0.12	3.00-4.50-5.90
Belmore--------	0-11	30-39-50	40-46-55	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.16-0.18	0.00-1.50-2.90
	11-25	40-50-65	20-25-35	15-25-30	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90
	25-36	40-51-65	15-22-35	18-26-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	36-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
LteG:								
Lybrand--------	0-9	20-32-40	40-46-55	18-22-26	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-21	10-17-35	30-41-55	35-42-50	1.55-1.60-1.70	0.06-0.13-0.20	0.11-0.13-0.15	3.00-5.50-8.90
	21-33	10-17-35	30-41-55	35-42-50	1.55-1.60-1.70	0.06-0.13-0.20	0.11-0.13-0.15	3.00-5.50-8.90
	33-45	10-19-35	30-46-55	27-35-40	1.55-1.65-1.70	0.06-0.13-0.20	0.07-0.11-0.15	3.00-4.50-5.90
	45-80	10-19-40	33-49-60	27-32-40	1.60-1.70-1.80	0.06-0.13-0.20	0.04-0.08-0.12	3.00-4.50-5.90
Belmore--------	0-11	30-39-50	40-46-55	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.16-0.18	0.00-1.50-2.90
	11-25	40-50-65	20-25-35	15-25-30	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90
	25-36	40-51-65	15-22-35	18-26-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	36-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
MecA:								
Martinsville---	0-8	32-43-50	35-44-50	8-13-18	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	8-17	40-49-60	15-27-40	15-24-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.18-0.21	0.00-2.50-5.90
	17-43	40-52-60	15-22-35	20-26-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	0.00-2.50-5.90
	43-53	40-55-70	15-27-35	10-18-25	1.40-1.53-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-1.50-2.90
	53-80	25-48-90	5-42-55	5-10-20	1.50-1.60-1.70	0.60-1.30-2.00	0.08-0.13-0.17	0.00-1.50-2.90
MecB:								
Martinsville---	0-8	32-43-50	35-44-50	8-13-18	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	8-17	40-49-60	15-27-40	15-24-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.18-0.21	0.00-2.50-5.90
	17-43	40-52-60	15-22-35	20-26-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	0.00-2.50-5.90
	43-53	40-55-70	15-27-35	10-18-25	1.40-1.53-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-1.50-2.90
	53-80	25-48-90	5-42-55	5-10-20	1.50-1.60-1.70	0.60-1.30-2.00	0.08-0.13-0.17	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
MmcB2:								
Miami----------	0-8	30-40-50	35-45-55	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	8-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90
	31-36	35-44-55	30-36-45	15-20-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
MmcC2:								
Miami----------	0-8	30-40-50	35-45-55	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	8-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90
	31-36	35-44-55	30-36-45	15-20-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
MoeB2:								
Miamian--------	0-9	20-32-40	40-48-55	14-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-26	15-25-35	30-36-45	35-39-45	1.45-1.60-1.75	0.20-0.40-0.60	0.12-0.15-0.17	3.00-5.50-8.90
	26-33	20-34-45	30-41-50	16-25-35	1.60-1.70-1.80	0.20-0.40-0.60	0.08-0.10-0.12	0.00-2.50-5.90
	33-80	24-34-45	30-44-50	16-22-26	1.75-1.85-1.95	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90
MoeC2:								
Miamian--------	0-9	20-32-40	40-48-55	14-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-26	15-25-35	30-36-45	35-39-48	1.45-1.60-1.75	0.20-0.40-0.60	0.12-0.15-0.17	3.00-5.50-8.90
	26-33	20-34-45	30-41-50	16-25-35	1.60-1.70-1.80	0.20-0.40-0.60	0.08-0.10-0.12	0.00-2.50-5.90
	33-80	24-34-45	30-44-50	16-22-26	1.75-1.85-1.95	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90
MorA:								
Milford--------	0-13	5-10-20	40-45-55	40-45-50	1.40-1.48-1.55	0.60-1.30-2.00	0.16-0.18-0.20	3.00-6.50-8.90
	13-17	5-8 -15	40-50-55	40-42-50	1.40-1.50-1.60	0.20-0.40-0.60	0.11-0.12-0.13	6.00-7.50-8.90
	17-28	5-8 -15	45-54-60	35-38-40	1.40-1.50-1.60	0.20-0.40-0.60	0.14-0.17-0.19	3.00-4.50-5.90
	28-80	10-16-25	50-59-70	20-25-27	1.45-1.50-1.55	0.20-0.40-0.60	0.20-0.21-0.22	0.00-1.50-2.90
MphA:								
Milford--------	0-11	5-10-15	46-55-65	30-35-39	1.35-1.40-1.45	0.60-1.30-2.00	0.21-0.22-0.23	3.00-4.50-5.90
	11-29	5-8 -25	40-52-60	35-40-45	1.40-1.50-1.60	0.20-0.40-0.60	0.15-0.18-0.20	3.00-5.50-8.90
	29-43	5-9 -25	40-53-60	35-38-42	1.40-1.50-1.60	0.20-0.40-0.60	0.15-0.18-0.20	3.00-5.50-8.90
	43-80	25-54-90	5-32-55	5-14-22	1.50-1.55-1.60	0.60-1.30-2.00	0.18-0.20-0.22	0.00-1.50-2.90
MprA:								
Milford--------	0-13	5-10-15	46-55-65	27-35-39	1.35-1.45-1.55	0.60-1.30-2.00	0.21-0.22-0.23	3.00-4.50-5.90
	13-49	5-8 -25	40-52-60	35-40-45	1.45-1.55-1.65	0.20-0.40-0.60	0.11-0.16-0.20	3.00-5.50-8.90
	49-80	15-24-40	35-46-50	25-30-35	1.45-1.58-1.70	0.20-0.40-0.60	0.05-0.12-0.19	0.00-3.50-5.90
MryA:								
Millgrove------	0-8	10-20-30	40-53-60	25-27-30	1.30-1.40-1.50	0.60-1.30-2.00	0.18-0.21-0.24	0.00-3.50-5.90
	8-15	10-20-30	40-51-60	25-29-32	1.30-1.40-1.50	0.60-1.30-2.00	0.18-0.21-0.24	0.00-3.50-5.90
	15-32	25-37-55	20-30-40	25-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.13-0.16-0.19	0.00-4.50-5.90
	32-48	25-40-60	20-40-45	15-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.13-0.15	0.00-1.50-2.90
	48-80	40-55-90	5-33-55	5-12-18	1.50-1.60-1.70	2.00-4.00-6.00	0.08-0.10-0.12	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
MumC2:								
Morley---------	0-9	15-20-25	50-56-60	20-24-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	9-20	15-21-25	30-37-45	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.11-0.15-0.18	3.00-5.50-8.90
	20-29	15-24-30	30-40-50	27-36-45	1.50-1.60-1.70	0.20-0.40-0.60	0.11-0.15-0.18	3.00-4.50-8.90
	29-36	18-22-30	35-46-50	27-32-35	1.65-1.75-1.85	0.01-0.06-0.20	0.04-0.08-0.12	3.00-4.50-5.90
	36-80	18-22-30	35-46-50	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
MumD2:								
Morley---------	0-9	15-20-25	50-56-60	20-24-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	9-20	15-21-25	30-37-45	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.11-0.15-0.18	3.00-5.50-8.90
	20-29	15-24-30	30-40-50	27-36-45	1.50-1.60-1.70	0.20-0.40-0.60	0.11-0.15-0.18	3.00-4.50-8.90
	29-36	18-22-30	35-46-50	27-32-35	1.65-1.75-1.85	0.01-0.06-0.20	0.04-0.08-0.12	3.00-4.50-5.90
	36-80	18-22-30	35-46-50	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
MvbC3:								
Morley---------	0-7	15-22-30	40-45-50	27-33-39	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.19-0.20	3.00-4.50-5.90
	7-20	15-21-25	30-37-45	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.11-0.15-0.18	3.00-5.50-8.90
	20-29	15-24-30	30-40-50	27-36-45	1.50-1.60-1.70	0.20-0.40-0.60	0.04-0.08-0.12	3.00-4.50-8.90
	29-80	18-22-30	35-46-50	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
Mississinewa---	0-5	15-22-30	35-45-50	27-33-39	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.19-0.20	3.00-4.50-5.90
	5-10	15-21-25	30-40-50	35-39-50	1.40-1.53-1.65	0.20-0.40-0.60	0.07-0.12-0.17	3.00-5.50-8.90
	10-14	15-25-30	30-42-50	27-34-40	1.50-1.63-1.75	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	14-80	18-26-30	35-43-50	27-31-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
MvbD3:								
Morley---------	0-7	15-22-30	40-45-50	27-33-39	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.19-0.20	3.00-4.50-5.90
	7-20	15-21-25	30-37-45	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.11-0.15-0.18	3.00-5.50-8.90
	20-29	15-24-30	30-40-50	27-36-45	1.50-1.60-1.70	0.20-0.40-0.60	0.04-0.08-0.12	3.00-4.50-8.90
	29-80	18-22-30	35-46-50	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
Mississinewa---	0-5	15-22-30	35-45-50	27-33-39	1.40-1.50-1.60	0.20-0.40-0.60	0.17-0.19-0.20	3.00-4.50-5.90
	5-10	15-21-25	30-40-50	35-39-50	1.40-1.53-1.65	0.20-0.40-0.60	0.07-0.12-0.17	3.00-5.50-8.90
	10-14	15-25-30	30-42-50	27-34-40	1.50-1.63-1.75	0.20-0.40-0.60	0.04-0.10-0.15	3.00-4.50-5.90
	14-80	18-26-35	35-43-50	27-31-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
MvxA:								
Mountpleasant--	0-8	20-22-25	50-57-65	15-21-26	1.30-1.45-1.60	0.20-1.10-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	8-23	15-24-30	30-36-46	35-40-45	1.40-1.55-1.70	0.20-0.40-0.60	0.11-0.16-0.21	3.00-6.50-8.90
	23-58	25-33-35	35-42-45	20-25-35	1.50-1.70-1.90	0.20-0.40-0.60	0.08-0.14-0.18	0.00-3.50-5.90
	58-86	30-33-35	40-44-50	20-22-25	1.70-1.80-1.90	0.20-0.40-0.60	0.03-0.10-0.15	0.00-1.50-2.90
	86-110	50-63-85	10-19-25	5-18-30	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	110-118	80-87-93	5-10-15	2-3-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
MvxB2:								
Mountpleasant--	0-8	20-22-25	50-57-65	15-21-26	1.30-1.45-1.60	0.20-1.10-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	8-23	15-24-30	30-36-46	35-40-45	1.40-1.55-1.70	0.20-0.40-0.60	0.11-0.16-0.21	3.00-6.50-8.90
	23-58	25-33-35	35-42-45	20-25-30	1.50-1.70-1.90	0.20-0.40-0.60	0.08-0.14-0.18	0.00-3.50-5.90
	58-86	30-33-35	40-44-50	20-22-25	1.70-1.80-1.90	0.20-0.40-0.60	0.03-0.10-0.15	0.00-1.50-2.90
	86-110	50-63-85	10-19-25	5-18-30	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	110-118	80-87-93	5-10-15	2-3-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
MvxC2:								
Mountpleasant--	0-8	20-23-25	50-54-65	15-23-27	1.30-1.45-1.60	0.20-1.10-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	8-23	15-24-30	30-36-46	35-40-45	1.40-1.55-1.70	0.20-0.40-0.60	0.11-0.16-0.21	3.00-6.50-8.90
	23-58	25-33-35	35-42-45	20-25-30	1.50-1.70-1.90	0.20-0.40-0.60	0.08-0.14-0.18	0.00-3.50-5.90
	58-86	30-33-35	40-44-50	20-22-25	1.70-1.80-1.90	0.20-0.40-0.60	0.03-0.10-0.15	0.00-1.50-2.90
	86-110	50-63-85	10-19-25	5-18-30	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	110-118	80-87-93	5-10-15	2-3-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
MwzAN:								
Muskego--------	0-9	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	0.60-3.30-6.00	0.35-0.40-0.45	---
	9-27	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	0.60-3.30-6.00	0.35-0.40-0.45	---
	27-80	0-4 -10	60-70-80	18-26-35	0.30-0.70-1.10	0.06-0.13-0.20	0.18-0.21-0.24	3.00-4.50-5.90
MwzAU:								
Muskego--------	0-9	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	0.60-3.30-6.00	0.35-0.40-0.45	---
	9-27	3-7 -10	80-88-95	0-5-10	0.10-0.16-0.21	0.60-3.30-6.00	0.35-0.40-0.45	---
	27-80	0-4 -10	60-70-80	18-26-35	0.30-0.70-1.10	0.06-0.13-0.20	0.18-0.21-0.24	3.00-4.50-5.90
ObxA:								
Ockley---------	0-10	15-25-40	50-60-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90
	10-15	15-25-40	50-59-65	10-16-22	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	15-18	15-23-35	40-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90
	18-37	20-31-60	18-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90
	37-49	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.15-0.18	0.00-3.10-5.90
	49-80	80-89-95	3-8 -13	2-3-5	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
ObxB2:								
Ockley---------	0-9	15-28-40	50-57-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90
	9-16	15-23-35	40-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90
	16-34	20-31-60	18-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90
	34-48	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.14-0.18	0.00-3.10-5.90
	48-80	80-90-95	3-6 -13	2-4-5	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
PgaA:								
Pella----------	0-11	5-10-15	50-59-65	27-31-35	1.25-1.35-1.45	0.60-1.30-2.00	0.21-0.22-0.23	3.00-4.50-5.90
	11-14	5-9 -15	50-59-65	27-32-35	1.25-1.35-1.45	0.60-1.30-2.00	0.21-0.22-0.23	3.00-4.50-5.90
	14-29	5-8 -15	50-58-65	27-34-41	1.35-1.45-1.55	0.60-1.30-2.00	0.21-0.23-0.24	3.00-4.50-5.90
	29-34	10-15-45	40-62-75	15-22-30	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.18-0.20	0.00-2.50-5.90
	34-80	10-25-60	20-57-70	10-18-30	1.50-1.60-1.70	0.60-1.30-2.00	0.10-0.16-0.22	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
PkkA:								
Pewamo---------	0-10	10-17-20	40-49-55	27-34-40	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	3.00-4.50-5.90
	10-34	10-16-25	30-42-50	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.10-0.14-0.18	3.00-5.50-8.90
	34-57	15-20-30	30-38-50	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.10-0.14-0.18	3.00-5.50-8.90
	57-80	15-23-30	32-44-55	27-33-38	1.60-1.65-1.75	0.20-0.40-0.60	0.10-0.13-0.16	3.00-4.50-5.90
Pmg:								
Pits, gravel.								
Pml:								
Pits, quarry.								
ReyA:								
Rensselaer-----	0-11	25-40-55	30-41-50	11-19-27	1.30-1.43-1.55	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	11-15	25-40-55	30-38-50	11-22-27	1.30-1.43-1.55	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90
	15-38	15-37-55	25-36-50	20-28-35	1.40-1.55-1.70	0.60-1.30-2.00	0.15-0.18-0.20	0.00-3.50-5.90
	38-42	30-45-60	20-30-40	18-25-30	1.40-1.55-1.70	0.60-1.30-2.00	0.09-0.15-0.20	0.00-1.50-2.90
	42-80	25-54-88	10-35-55	2-11-20	1.50-1.60-1.70	0.60-1.30-2.00	0.10-0.14-0.18	0.00-1.50-2.90
RroAH:								
Ross-----------	0-8	20-35-45	30-44-55	15-21-26	1.20-1.33-1.45	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90
	8-29	20-34-45	30-44-55	15-22-26	1.20-1.33-1.45	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90
	29-40	20-36-57	25-40-55	18-24-30	1.20-1.35-1.50	0.60-1.30-2.00	0.16-0.19-0.22	0.00-1.50-2.90
	40-80	20-55-70	20-30-55	5-15-25	1.40-1.50-1.60	0.60-3.30-6.00	0.05-0.12-0.18	0.00-1.50-2.90
Lash-----------	0-10	30-42-55	35-44-55	10-14-18	1.30-1.40-1.50	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90
	10-14	30-42-55	35-44-55	10-14-18	1.30-1.40-1.50	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90
	14-52	30-42-60	30-46-55	5-12-18	1.40-1.50-1.60	2.00-4.00-6.00	0.14-0.18-0.21	0.00-1.50-2.90
	52-80	70-80-90	5-15-25	1-5-10	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90
RrwB:								
Rawson---------	0-10	40-50-60	30-40-50	5-10-15	1.30-1.45-1.60	0.60-1.30-2.00	0.13-0.16-0.18	0.00-1.50-2.90
	10-20	40-50-60	10-30-45	10-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.07-0.13-0.18	0.00-3.50-5.90
	20-39	40-48-60	10-26-35	18-26-35	1.40-1.50-1.60	0.60-1.30-2.00	0.07-0.13-0.18	0.00-3.50-5.90
	39-43	10-19-30	35-43-50	27-38-50	1.50-1.63-1.75	0.20-0.40-0.60	0.07-0.12-0.17	3.00-4.50-5.90
	43-80	15-22-30	35-46-50	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.02-0.04	3.00-4.50-5.90
SgmAH:								
Shoals---------	0-8	15-26-40	40-52-60	18-22-26	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	8-13	15-30-40	40-48-60	18-22-26	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	13-30	20-40-55	25-35-55	18-25-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.19-0.22	0.00-2.50-5.90
	30-80	20-55-90	5-30-55	5-15-25	1.45-1.55-1.65	0.60-3.30-6.00	0.05-0.13-0.20	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
SmsAH:								
Sloan----------	0-9	15-23-30	45-53-60	18-24-30	1.20-1.30-1.40	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90
	9-15	15-23-30	45-53-60	18-24-30	1.20-1.30-1.40	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90
	15-34	15-20-40	35-52-60	22-28-35	1.35-1.45-1.55	0.20-1.10-2.00	0.15-0.17-0.19	0.00-3.50-5.90
	34-45	15-30-45	33-42-55	22-28-35	1.35-1.45-1.55	0.20-1.10-2.00	0.15-0.17-0.19	0.00-3.50-5.90
	45-80	15-45-65	25-35-55	10-20-30	1.30-1.40-1.50	0.20-1.10-2.00	0.13-0.16-0.18	0.00-1.50-2.90
SnlA:								
Southwest------	0-10	10-12-20	53-64-70	18-24-27	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	10-23	5-10-20	50-62-70	18-28-39	1.40-1.55-1.70	0.60-1.30-2.00	0.16-0.19-0.21	0.00-3.50-5.90
	23-34	5-12-30	40-60-70	18-28-39	1.40-1.55-1.70	0.20-0.40-0.60	0.13-0.17-0.21	0.00-3.50-5.90
	34-45	5-12-30	40-60-70	18-28-35	1.40-1.55-1.70	0.20-0.40-0.60	0.13-0.17-0.21	0.00-3.50-5.90
	45-75	5-12-30	40-60-70	18-28-35	1.40-1.55-1.70	0.20-0.40-0.60	0.14-0.18-0.21	0.00-3.50-5.90
	75-80	5-12-30	40-64-70	15-24-32	1.40-1.55-1.70	0.20-0.40-0.60	0.07-0.14-0.21	0.00-2.50-5.90
SvsE2:								
Strawn---------	0-7	19-34-45	40-46-55	15-20-26	1.30-1.40-1.45	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-22	15-34-45	25-36-50	25-30-35	1.35-1.45-1.55	0.60-1.30-2.00	0.10-0.15-0.20	0.00-3.50-5.90
	22-80	25-42-60	25-40-55	15-18-20	1.45-1.55-1.65	0.60-1.30-2.00	0.08-0.10-0.12	0.00-1.50-2.90
Belmore--------	0-11	30-39-50	40-46-55	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.16-0.18	0.00-1.50-2.90
	11-25	40-50-65	20-25-35	15-25-30	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90
	25-36	40-51-65	15-22-35	18-26-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	36-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
SvsG:								
Strawn---------	0-7	19-34-45	40-46-55	15-20-26	1.15-1.30-1.45	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-22	15-34-45	25-36-50	24-30-35	1.35-1.45-1.55	0.60-1.30-2.00	0.10-0.15-0.20	0.00-3.50-5.90
	22-80	25-42-60	25-40-55	15-18-20	1.45-1.55-1.65	0.60-1.30-2.00	0.08-0.10-0.12	0.00-1.50-2.90
Belmore--------	0-11	30-39-50	40-46-55	10-15-20	1.30-1.38-1.45	0.60-1.30-2.00	0.14-0.16-0.18	0.00-1.50-2.90
	11-25	40-50-65	20-25-35	15-25-30	1.35-1.48-1.60	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90
	25-36	40-51-65	15-22-35	18-26-35	1.40-1.50-1.60	2.00-4.00-6.00	0.06-0.11-0.15	0.00-2.50-5.90
	36-80	45-70-85	10-20-35	5-10-20	1.50-1.60-1.70	6.00-13.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90
ThrA:								
Treaty---------	0-10	5-17-20	50-56-65	24-27-30	1.30-1.40-1.50	0.60-1.30-2.00	0.17-0.21-0.24	0.00-3.50-5.90
	10-14	5-16-20	50-55-65	24-29-32	1.30-1.40-1.50	0.60-1.30-2.00	0.17-0.21-0.24	0.00-3.50-5.90
	14-36	5-12-15	50-55-70	24-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.14-0.18-0.21	0.00-4.50-5.90
	36-59	15-30-45	25-44-50	20-26-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	0.00-2.50-5.90
	59-80	30-40-60	25-42-50	10-18-20	1.60-1.70-1.75	0.20-0.40-0.60	0.01-0.08-0.15	0.00-1.50-2.90
Uam:								
Udorthents-----	0-60	25-36-45	30-38-50	15-26-35	1.50-1.75-2.00	0.01-0.13-0.60	0.02-0.09-0.15	0.00-3.50-5.90
UccA:								
Urban land.								

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
UccA:								
Crosby---------	0-8	15-20-30	50-65-75	10-15-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90
	11-14	15-21-30	50-55-65	20-24-26	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90
	14-28	10-19-30	35-43-55	35-38-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90
	36-80	30-42-60	28-40-50	10-18-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
Treaty---------	0-10	5-17-20	50-56-65	24-27-30	1.30-1.40-1.50	0.60-1.30-2.00	0.17-0.21-0.24	3.00-3.50-5.90
	10-14	5-16-20	50-55-65	24-29-32	1.30-1.40-1.50	0.60-1.30-2.00	0.17-0.21-0.24	0.00-3.50-5.90
	14-37	5-12-15	50-55-70	24-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90
	37-48	15-30-45	25-44-50	20-26-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	0.00-2.50-5.90
	48-80	30-40-60	25-42-50	10-18-20	1.60-1.70-1.75	0.20-0.40-0.60	0.01-0.08-0.15	0.00-1.50-2.90
Ucu:								
Udorthents-----	0-60	65-85-99	0-10-25	1-5-10	1.55-1.85-2.10	6.00-39.96-60.00	0.02-0.04-0.05	0.00-1.50-2.90
UdmA:								
Urban land.								
Blount---------	0-7	10-23-30	45-58-75	12-19-26	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	7-23	10-17-25	30-41-55	35-42-48	1.40-1.55-1.70	0.06-0.33-0.60	0.12-0.16-0.19	3.00-5.50-8.90
	23-30	10-19-30	31-46-55	27-35-39	1.50-1.60-1.70	0.06-0.33-0.60	0.10-0.14-0.17	3.00-4.50-5.90
	30-42	15-24-30	31-43-55	27-33-39	1.60-1.70-1.80	0.01-0.13-0.20	0.01-0.04-0.07	3.00-4.50-5.90
	42-80	15-24-30	31-43-55	27-33-39	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90
Pewamo---------	0-10	10-17-20	40-49-55	27-34-40	1.35-1.45-1.55	0.60-1.30-2.00	0.20-0.22-0.23	3.00-4.50-5.90
	10-34	10-16-25	30-42-50	35-42-50	1.40-1.55-1.70	0.20-0.40-0.60	0.10-0.14-0.18	3.00-5.50-8.90
	34-57	15-20-30	30-38-50	35-42-50	1.45-1.55-1.65	0.20-0.40-0.60	0.10-0.14-0.18	3.00-5.50-8.90
	57-80	15-23-30	32-44-55	27-33-38	1.60-1.65-1.75	0.20-0.40-0.60	0.10-0.13-0.16	3.00-4.50-5.90
UemB:								
Urban land.								
Fox------------	0-10	25-38-50	30-47-55	10-15-20	1.35-1.45-1.55	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90
	10-19	25-44-50	20-29-40	18-27-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-3.50-5.90
	19-31	40-55-70	10-18-35	18-26-35	1.55-1.60-1.65	0.60-1.30-2.00	0.10-0.15-0.19	0.00-2.50-5.90
	31-80	85-89-95	5-10-15	0-1-2	1.60-1.85-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
UetB:								
Urban land.								
Glynwood-------	0-9	15-22-30	50-56-60	16-22-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-23	10-16-25	30-39-50	35-45-55	1.45-1.58-1.70	0.06-0.13-0.20	0.11-0.15-0.18	3.00-5.50-8.90
	23-32	15-22-30	31-43-50	27-35-39	1.55-1.65-1.75	0.06-0.13-0.20	0.06-0.08-0.10	3.00-4.50-5.90
	32-80	15-22-30	35-46-55	27-32-35	1.70-1.80-1.90	0.01-0.03-0.20	0.01-0.03-0.04	3.00-4.50-5.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct
UfuA:								
Urban land.								
Millgrove------	0-8	10-20-30	40-52-60	25-28-32	1.30-1.40-1.50	0.60-1.30-2.00	0.18-0.21-0.24	0.00-3.50-5.90
	8-15	10-20-30	40-51-60	25-29-32	1.30-1.40-1.50	0.60-1.30-2.00	0.18-0.21-0.24	0.00-3.50-5.90
	15-32	25-37-55	20-30-40	25-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.13-0.16-0.19	0.00-4.50-5.90
	32-48	25-40-60	20-40-45	15-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.08-0.13-0.15	0.00-1.50-2.90
	48-80	40-55-90	5-33-55	5-12-18	1.50-1.60-1.70	2.00-4.00-6.00	0.08-0.10-0.12	0.00-1.50-2.90
UhaB:								
Urban land.								
Wawaka---------	0-9	10-20-30	50-60-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	9-35	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90
	35-39	30-40-50	30-38-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90
	39-84	35-40-45	35-41-50	14-19-30	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90
	84-96	60-70-85	5-15-25	10-15-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	96-99	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
Miami----------	0-8	30-40-50	35-45-55	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90
	8-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90
	31-36	35-44-55	30-36-45	15-20-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
W:								
Water.								
WbgB3:								
Wapahani-------	0-5	25-34-40	30-38-50	22-28-35	1.40-1.50-1.60	0.20-0.40-0.60	0.13-0.16-0.19	0.00-3.50-5.90
	5-16	25-38-45	25-32-40	22-30-35	1.40-1.55-1.70	0.20-0.40-0.60	0.07-0.12-0.17	0.00-3.50-5.90
	16-20	30-42-55	30-38-45	15-20-26	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90
	20-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
WbgC3:								
Wapahani-------	0-5	25-34-40	30-38-50	22-28-35	1.40-1.50-1.60	0.20-0.40-0.60	0.13-0.16-0.19	0.00-3.50-5.90
	5-16	25-38-45	25-32-40	22-30-35	1.40-1.55-1.70	0.20-0.40-0.60	0.07-0.12-0.17	0.00-3.50-5.90
	16-20	30-42-55	30-38-45	15-20-26	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90
	20-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90
WdrA:								
Wawaka---------	0-9	10-20-30	50-60-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	9-35	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90
	35-39	30-40-50	30-38-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90
	39-84	35-40-45	35-41-50	14-19-30	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90
	84-96	60-70-85	5-15-25	10-15-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	96-99	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*
WdrB2:								
Wawaka---------	0-9	10-20-30	50-60-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	9-35	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90
	35-39	30-40-50	30-38-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90
	39-84	35-40-45	35-41-50	14-19-30	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90
	84-96	60-70-85	5-15-25	10-15-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	96-99	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
WdrC2:								
Wawaka---------	0-9	10-20-30	50-58-70	18-22-27	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90
	9-35	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90
	35-39	30-40-50	30-38-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90
	39-84	35-40-45	35-41-50	14-19-30	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90
	84-96	60-70-85	5-15-25	10-15-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90
	96-99	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-39.96-60.00	0.02-0.03-0.04	0.00-1.50-2.90
WonA:								
Williamstown---	0-9	10-19-25	51-61-70	14-20-24	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90
	9-33	15-35-45	20-35-55	27-30-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.16-0.21	3.00-4.50-5.90
	33-37	25-45-60	20-35-50	15-20-27	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.08-0.12	0.00-1.50-2.90
	37-80	35-45-60	20-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90

Table 17b.--Physical Properties of the Soils

[Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. RV stands for representative value. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodibility group	Wind erodibility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
BdhAH:								
Bellcreek---------------	0-10	.24	.24	5	4	86	200	0.5
	10-48	.28	.28					
	48-64	.32	.32					
	64-80	.24	.28					
BdlC2:								
Belmore-----------------	0-9	.28	.32	5	5	56	100	9.0
	9-21	.17	.20					
	21-41	.10	.17					
	41-80	.10	.17					
BdmA:								
Belmore-----------------	0-9	.43	.43	5	5	56	250	1.0
	9-14	.43	.43					
	14-21	.17	.20					
	21-41	.10	.17					
	41-80	.10	.17					
BdmB2:								
Belmore-----------------	0-9	.43	.43	5	5	56	150	3.0
	9-21	.17	.20					
	21-41	.10	.17					
	41-80	.10	.17					
BdsAN:								
Benadum-----------------	0-10	.37	.37	5	6	48	150	0.5
	10-21	.37	.37					
	21-44	---	---					
	44-80	.28	.28					
BdsAU:								
Benadum-----------------	0-10	.37	.37	5	8	48	150	0.5
	10-21	.37	.37					
	21-44	---	---					
	44-80	.28	.28					
BltA:								
Blount------------------	0-7	.43	.43	4	6	48	150	1.0
	7-23	.43	.43					
	23-30	.43	.43					
	30-42	.43	.43					
	42-80	.43	.43					
BmlA:								
Blount------------------	0-7	.43	.43	4	6	48	200	0.5
	7-23	.43	.43					
	23-30	.43	.43					
	30-42	.43	.43					
	42-80	.43	.43					
Del Rey-----------------	0-9	.43	.43	4	6	48	200	0.5
	9-29	.43	.43					
	29-37	.43	.43					
	37-80	.43	.43					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
CdgC3:								
Casco-------------------	0-8	.15	.20	2	5	56	100	11.0
	8-16	.24	.32					
	16-80	.05	.10					
CudA:								
Crosby------------------	0-8	.43	.43	4	5	56	250	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
DdxA:								
Digby-------------------	0-12	.43	.43	5	5	56	250	1.0
	12-20	.20	.24					
	20-31	.10	.20					
	31-41	.10	.20					
	41-80	.10	.17					
Haney-------------------	0-8	.43	.43	5	5	56	250	1.0
	8-15	.43	.43					
	15-36	.20	.24					
	36-45	.15	.24					
	45-80	.10	.17					
EdxA:								
Eldean------------------	0-7	.43	.43	4	5	56	250	1.0
	7-10	.32	.32					
	10-26	.15	.17					
	26-31	.10	.20					
	31-80	.02	.05					
EdxB2:								
Eldean------------------	0-7	.43	.43	4	5	56	150	4.0
	7-23	.15	.17					
	23-30	.10	.20					
	30-80	.02	.05					
EdxC2:								
Eldean------------------	0-7	.43	.43	4	5	56	100	9.0
	7-23	.15	.17					
	23-30	.10	.20					
	30-80	.02	.05					
EdxD2:								
Eldean------------------	0-7	.43	.43	4	5	56	100	15.0
	7-23	.15	.17					
	23-30	.10	.20					
	30-80	.02	.05					
EdxE2:								
Eldean------------------	0-5	.43	.43	4	5	56	100	27.0
	5-11	.32	.32					
	11-22	.15	.17					
	22-39	.10	.20					
	39-80	.02	.05					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Kf	T	Wind erodibility group	Wind erodibility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
FexB2:								
Fox	0-10	.24	.28	4	5	56	150	4.0
	10-19	.24	.32					
	19-31	.20	.32					
	31-80	.05	.10					
FexC2:								
Fox	0-10	.24	.28	4	5	56	100	9.0
	10-19	.24	.32					
	19-31	.20	.32					
	31-80	.05	.10					
FgoB2:								
Fox	0-10	.24	.28	4	5	56	150	4.0
	10-19	.24	.32					
	19-31	.20	.32					
	31-80	.05	.10					
Muncie	0-6	.37	.37	4	6	48	150	4.0
	6-30	.28	.28					
	30-37	.28	.32					
	37-56	.32	.37					
	56-80	.05	.10					
FgoC2:								
Fox	0-10	.24	.28	4	5	56	100	9.0
	10-19	.24	.32					
	19-31	.20	.32					
	31-80	.05	.10					
Muncie	0-6	.37	.37	4	6	48	100	9.0
	6-30	.28	.28					
	30-37	.28	.32					
	37-56	.32	.37					
	56-80	.05	.10					
FgrC3:								
Fox	0-7	.20	.24	3	6	48	100	9.0
	7-23	.20	.32					
	23-80	.05	.10					
Muncie	0-5	.37	.37	3	7	38	100	9.0
	5-21	.28	.28					
	21-26	.28	.32					
	26-56	.32	.37					
	56-80	.05	.10					
FgrD3:								
Fox	0-7	.20	.24	3	6	48	100	15.0
	7-23	.20	.32					
	23-80	.05	.10					
Muncie	0-5	.37	.37	3	7	38	100	15.0
	5-21	.28	.28					
	21-26	.28	.32					
	26-56	.32	.37					
	56-80	.05	.10					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
GlnAH:								
Gessie------------------	0-10	.43	.43	5	4L	86	150	0.5
	10-43	.43	.43					
	43-80	.32	.32					
Eel---------------------	0-10	.43	.43	5	6	48	150	0.5
	10-22	.43	.43					
	22-34	.43	.43					
	34-42	.37	.43					
	42-80	.37	.43					
GlrB2:								
Glynwood----------------	0-7	.43	.43	4	6	48	150	3.0
	7-9	.43	.43					
	9-12	.37	.37					
	12-23	.32	.37					
	23-32	.32	.37					
	32-80	.32	.37					
GlyB3:								
Glynwood----------------	0-5	.32	.32	3	7	38	100	4.0
	5-17	.32	.37					
	17-20	.32	.37					
	20-80	.32	.37					
Mississinewa------------	0-5	.32	.32	2	6	48	100	4.0
	5-10	.32	.32					
	10-14	.28	.32					
	14-80	.32	.37					
HtbAN:								
Houghton----------------	0-80	---	---	3	2	134	150	0.5
HtbAU:								
Houghton----------------	0-80	---	---	3	2	134	150	0.5
LdfAH:								
Lash--------------------	0-10	.28	.28	4	4L	86	150	0.5
	10-14	.28	.28					
	14-52	.43	.43					
	52-80	.05	.05					
LneAW:								
Lickcreek---------------	0-10	.28	.28	4	5	56	150	1.0
	10-19	.28	.28					
	19-39	.20	.24					
	39-54	.10	.20					
	54-80	.05	.17					
LshC3:								
Losantville-------------	0-7	.32	.32	2	6	48	100	8.0
	7-16	.28	.32					
	16-80	.37	.49					
LshD3:								
Losantville-------------	0-7	.32	.32	2	6	48	100	13.0
	7-16	.28	.32					
	16-80	.37	.49					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
LteE:								
Lybrand-----------------	0-9	.32	.32	4	6	48	100	23.0
	9-21	.24	.28					
	21-33	.24	.28					
	33-45	.28	.32					
	45-80	.32	.37					
Belmore-----------------	0-11	.28	.32	5	5	56	100	23.0
	11-25	.17	.20					
	25-36	.10	.17					
	36-80	.10	.17					
LteG:								
Lybrand-----------------	0-9	.32	.32	4	6	48	100	40.0
	9-21	.24	.28					
	21-33	.24	.28					
	33-45	.28	.32					
	45-80	.32	.37					
Belmore-----------------	0-11	.28	.32	5	5	56	100	40.0
	11-25	.17	.20					
	25-36	.10	.17					
	36-80	.10	.17					
MecA:								
Martinsville------------	0-8	.32	.37	5	5	56	250	1.0
	8-17	.28	.32					
	17-43	.28	.32					
	43-53	.20	.24					
	53-80	.28	.32					
MecB:								
Martinsville------------	0-8	.32	.37	5	5	56	150	4.0
	8-17	.28	.32					
	17-43	.28	.32					
	43-53	.20	.24					
	53-80	.28	.32					
MmcB2:								
Miami-------------------	0-8	.37	.37	4	5	56	200	4.0
	8-31	.32	.37					
	31-36	.37	.43					
	36-80	.37	.43					
MmcC2:								
Miami-------------------	0-8	.37	.37	4	5	56	100	9.0
	8-31	.32	.37					
	31-36	.37	.43					
	36-80	.37	.43					
MoeB2:								
Miamian-----------------	0-9	.37	.37	4	6	48	200	3.0
	9-26	.37	.43					
	26-33	.37	.49					
	33-80	.37	.49					
MoeC2:								
Miamian-----------------	0-9	.37	.37	4	6	48	100	8.0
	9-26	.37	.43					
	26-33	.37	.49					
	33-80	.37	.49					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
MorA:								
Milford-----------------	0-13	.20	.20	5	4	86	150	0.5
	13-17	.28	.28					
	17-28	.32	.32					
	28-80	.43	.43					
MphA:								
Milford-----------------	0-11	.28	.28	5	4	86	175	0.5
	11-29	.32	.32					
	29-43	.32	.32					
	43-80	.28	.32					
MprA:								
Milford-----------------	0-13	.28	.28	5	7	38	150	0.5
	13-49	.32	.32					
	49-80	.32	.37					
MryA:								
Millgrove---------------	0-8	.28	.32	5	6	48	200	0.5
	8-15	.28	.32					
	15-32	.28	.32					
	32-48	.24	.43					
	48-80	.28	.55					
MumC2:								
Morley------------------	0-9	.43	.43	4	6	48	100	8.0
	9-20	.32	.32					
	20-29	.32	.32					
	29-36	.37	.43					
	36-80	.37	.43					
MumD2:								
Morley------------------	0-9	.43	.43	4	6	48	100	13.0
	9-20	.32	.32					
	20-29	.32	.32					
	29-36	.37	.43					
	36-80	.37	.43					
MvbC3:								
Morley------------------	0-7	.32	.32	3	6	48	100	8.0
	7-20	.32	.32					
	20-29	.28	.32					
	29-80	.37	.43					
Mississinewa------------	0-5	.32	.32	2	6	48	100	8.0
	5-10	.32	.32					
	10-14	.28	.32					
	14-80	.32	.37					
MvbD3:								
Morley------------------	0-7	.32	.32	3	6	48	100	13.0
	7-20	.32	.32					
	20-29	.28	.32					
	29-80	.37	.43					
Mississinewa------------	0-5	.32	.32	2	6	48	100	13.0
	5-10	.32	.32					
	10-14	.28	.32					
	14-80	.32	.37					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
MvxA:								
Mountpleasant-----------	0-8	.43	.43	4	6	48	250	1.0
	8-23	.24	.28					
	23-58	.28	.37					
	58-86	.32	.43					
	86-110	.05	.15					
	110-118	.02	.05					
MvxB2:								
Mountpleasant-----------	0-8	.43	.43	4	6	48	200	4.0
	8-23	.24	.28					
	23-58	.28	.37					
	58-86	.32	.43					
	86-110	.05	.15					
	110-118	.02	.05					
MvxC2:								
Mountpleasant-----------	0-8	.43	.43	4	6	48	100	9.0
	8-23	.24	.28					
	23-58	.28	.37					
	58-86	.32	.43					
	86-110	.05	.15					
	110-118	.02	.05					
MwzAN:								
Muskego-----------------	0-9	---	---	1	2	134	150	0.5
	9-27	---	---					
	27-80	.28	.28					
MwzAU:								
Muskego-----------------	0-9	---	---	1	2	134	150	0.5
	9-27	---	---					
	27-80	.28	.28					
ObxA:								
Ockley------------------	0-10	.43	.43	4	5	56	250	1.0
	10-15	.43	.43					
	15-18	.32	.37					
	18-37	.32	.37					
	37-49	.10	.20					
	49-80	.02	.10					
ObxB2:								
Ockley------------------	0-9	.43	.43	4	5	56	150	4.0
	9-16	.32	.37					
	16-34	.32	.37					
	34-48	.10	.20					
	48-80	.02	.10					
PgaA:								
Pella-------------------	0-11	.24	.24	5	7	38	200	0.5
	11-14	.24	.24					
	14-29	.28	.28					
	29-34	.37	.37					
	34-80	.32	.37					
PkkA:								
Pewamo------------------	0-10	.28	.28	5	7	38	200	0.5
	10-34	.32	.32					
	34-57	.28	.32					
	57-80	.32	.37					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
Pmg:								
Pits, gravel.								
Pml:								
Pits, quarry.								
ReyA:								
Rensselaer--------------	0-11	.24	.24	5	5	56	200	0.5
	11-15	.24	.24					
	15-38	.32	.32					
	38-42	.32	.32					
	42-80	.32	.37					
RroAH:								
Ross--------------------	0-8	.24	.24	5	5	56	150	0.5
	8-29	.24	.24					
	29-40	.28	.32					
	40-80	.32	.49					
Lash--------------------	0-10	.28	.28	4	4L	86	150	0.5
	10-14	.28	.28					
	14-52	.43	.43					
	52-80	.05	.05					
RrwB:								
Rawson------------------	0-10	.32	.37	4	5	56	150	3.0
	10-20	.17	.24					
	20-39	.17	.24					
	39-43	.28	.32					
	43-80	.32	.37					
SgmAH:								
Shoals------------------	0-8	.37	.37	5	6	48	200	0.5
	8-13	.37	.37					
	13-30	.32	.32					
	30-80	.32	.37					
SmsAH:								
Sloan-------------------	0-9	.28	.28	5	6	48	200	0.5
	9-15	.28	.28					
	15-34	.37	.37					
	34-45	.32	.37					
	45-80	.32	.43					
SnlA:								
Southwest---------------	0-10	.37	.37	5	6	48	150	0.5
	10-23	.37	.37					
	23-34	.28	.28					
	34-45	.37	.37					
	45-75	.28	.28					
	75-80	.43	.43					
SvsE2:								
Strawn------------------	0-7	.37	.37	5	6	48	100	23.0
	7-22	.24	.28					
	22-80	.28	.37					
Belmore-----------------	0-11	.28	.32	5	5	56	100	23.0
	11-25	.17	.20					
	25-36	.10	.17					
	36-80	.10	.17					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Kf	T	Wind erodibility group	Wind erodibility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
SvsG:								
Strawn	0-7	.37	.37	5	6	48	100	40.0
	7-22	.24	.28					
	22-80	.28	.37					
Belmore	0-11	.28	.32	5	5	56	100	40.0
	11-25	.17	.20					
	25-36	.10	.17					
	36-80	.10	.17					
ThrA:								
Treaty	0-10	.28	.28	5	7	38	200	0.5
	10-14	.28	.28					
	14-36	.37	.37					
	36-59	.37	.43					
	59-80	.43	.49					
Uam:								
Udorthents	0-60	---	---	---	7	38	---	2.0
UccA:								
Urban land	---	---	---	---	---	---	---	1.0
Crosby	0-8	.43	.43	4	5	56	250	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
Treaty	0-10	.28	.28	5	7	38	250	0.5
	10-14	.28	.28					
	14-37	.37	.37					
	37-48	.37	.43					
	48-80	.43	.49					
Ucu:								
Udorthents	0-60	---	---	---	1	310	---	3.0
UdmA:								
Urban land	---	---	---	---	---	---	---	1.0
Blount	0-7	.43	.43	4	6	48	200	1.0
	7-23	.43	.43					
	23-30	.43	.43					
	30-42	.43	.43					
	42-80	.43	.43					
Pewamo	0-10	.28	.28	5	7	38	200	0.5
	10-34	.32	.32					
	34-57	.28	.32					
	57-80	.32	.37					
UemB:								
Urban land	---	---	---	---	---	---	---	4.0
Fox	0-10	.24	.28	4	5	56	150	4.0
	10-19	.24	.32					
	19-31	.20	.32					
	31-80	.05	.10					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
UetB:								
Urban land	---	---	---	---	---	---	---	4.0
Glynwood	0-9	.43	.43	4	6	48	150	4.0
	9-23	.32	.37					
	23-32	.32	.37					
	32-80	.32	.37					
UfuA:								
Urban land	---	---	---	---	---	---	---	1.0
Millgrove	0-8	.28	.32	5	6	48	200	0.5
	8-15	.28	.32					
	15-32	.28	.32					
	32-48	.24	.43					
	48-80	.28	.55					
UhaB:								
Urban land	---	---	---	---	---	---	---	4.0
Wawaka	0-9	.43	.43	4	5	56	250	4.0
	9-35	.28	.32					
	35-39	.28	.37					
	39-84	.24	.43					
	84-96	.05	.15					
	96-99	.02	.05					
Miami	0-8	.37	.37	4	5	56	200	4.0
	8-31	.32	.37					
	31-36	.37	.43					
	36-80	.37	.43					
W:								
Water.								
WbgB3:								
Wapahani	0-5	.32	.32	3	6	48	100	3.0
	5-16	.28	.32					
	16-20	.32	.37					
	20-80	.43	.49					
WbgC3:								
Wapahani	0-5	.32	.32	3	6	48	100	8.0
	5-16	.28	.32					
	16-20	.32	.37					
	20-80	.43	.49					
WdrA:								
Wawaka	0-9	.43	.43	4	5	56	250	1.0
	9-35	.28	.32					
	35-39	.28	.37					
	39-84	.24	.43					
	84-96	.05	.15					
	96-99	.02	.05					
WdrB2:								
Wawaka	0-9	.43	.43	4	5	56	200	4.0
	9-35	.28	.32					
	35-39	.28	.37					
	39-84	.24	.43					
	84-96	.05	.15					
	96-99	.02	.05					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion Kw	Erosion Kf	Erosion T	Wind erodi-bility group	Wind erodi-bility index	Slope length (RV)	Slope gradient (RV)
	In						*Ft*	*Pct*
WdrC2:								
Wawaka------------------	0-9	.43	.43	4	5	56	100	9.0
	9-35	.28	.32					
	35-39	.28	.37					
	39-84	.24	.43					
	84-96	.05	.15					
	96-99	.02	.05					
WonA:								
Williamstown------------	0-9	.43	.43	4	5	56	200	1.0
	9-33	.32	.37					
	33-37	.37	.43					
	37-80	.43	.49					

Table 18.--Chemical Properties of the Soils

[Where three values are listed, the first is the low value, the second is the representative value, and the third is the high value. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
BdhAH:						
Bellcreek------------	0-10	25.0-30.0-35.0	---	6.1-7.0-7.8	0-1-5	3.0-4.0-6.0
	10-48	15.0-27.5-40.0	---	6.1-7.0-7.8	0-0-5	0.5-1.2-2.0
	48-64	15.0-27.5-40.0	---	6.1-7.0-7.8	0-1-5	0.5-1.2-2.0
	64-80	2.0-10.5-19.0	---	6.6-7.5-8.4	0-20-30	0.5-1.8-3.0
BdlC2:						
Belmore--------------	0-9	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	9-21	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	21-41	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	41-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
BdmA:						
Belmore--------------	0-9	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	9-14	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	14-21	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	21-41	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	41-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
BdmB2:						
Belmore--------------	0-9	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	9-21	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	21-41	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	41-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
BdsAN:						
Benadum--------------	0-10	10.0-12.5-15.0	---	6.1-6.7-7.3	0	2.0-3.0-4.0
	10-21	10.0-14.5-19.0	---	6.1-6.7-7.3	0	1.0-1.5-2.0
	21-44	125.0-162.5-200.0	---	6.1-7.0-7.8	0	60-75 -90
	44-80	10.0-27.5-45.0	---	6.6-7.5-8.4	0-1-60	6.0-13 -20
BdsAU:						
Benadum--------------	0-10	10.0-12.5-15.0	---	6.1-6.7-7.3	0	2.0-3.0-4.0
	10-21	10.0-14.5-19.0	---	6.1-6.7-7.3	0	1.0-1.5-2.0
	21-44	150.0-170.0-190.0	---	6.1-7.0-7.8	0	60-75 -90
	44-80	10.0-27.5-45.0	---	6.6-7.5-8.4	0-1-60	6.0-13 -20
BltA:						
Blount---------------	0-7	17.0-19.5-22.0	13.0-17.5-22.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	7-23	21.0-25.5-30.0	17.0-23.0-30.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	23-30	16.0-20.5-25.0	---	6.1-7.4-7.8	0-5-10	0.0-0.2-0.5
	30-42	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
	42-80	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
BmlA:						
Blount---------------	0-7	17.0-19.5-22.0	13.0-17.5-22.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	7-23	21.0-25.5-30.0	17.0-23.0-30.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	23-30	16.0-20.5-25.0	---	6.1-7.4-7.8	0-5-10	0.0-0.2-0.5
	30-42	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
	42-80	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
Del Rey--------------	0-9	12.0-16.0-20.0	10.0-13.0-20.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	9-29	18.0-21.0-24.0	14.0-17.0-24.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	29-37	12.0-16.0-20.0	---	7.4-7.9-8.4	0-5-10	0.0-0.2-0.5
	37-80	12.0-15.0-18.0	---	7.9-8.2-8.4	5-23-40	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
CdgC3:						
Casco----------------	0-8	10.0-14.0-20.0	---	6.1-7.4-7.8	0-0-3	0.5-0.8-1.0
	8-16	16.0-24.0-30.0	---	5.6-6.7-7.8	0-0-3	0.0-0.2-0.5
	16-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
CudA:						
Crosby---------------	0-8	6.0-13.0-20.0	5.0-12.0-20.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	8-11	6.0-12.0-18.0	5.0-10.0-18.0	5.1-6.2-7.3	0	1.0-1.5-2.0
	11-14	7.0-12.5-18.0	6.0-10.0-18.0	5.1-5.5-7.3	0	0.5-0.8-1.0
	14-28	15.0-22.0-29.0	12.0-20.0-29.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	28-36	5.0-11.0-17.0	---	7.4-7.8-8.4	5-23-40	0.0-0.2-0.5
	36-80	4.0-10.0-16.0	---	7.4-8.1-8.4	20-35-50	0.0-0.2-0.5
DdxA:						
Digby----------------	0-12	9.0-14.5-20.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	12-20	9.0-13.5-18.0	7.0-12.0-18.0	4.5-6.2-7.3	0	0.5-0.8-1.0
	20-31	9.0-13.5-18.0	---	6.1-7.0-7.8	0	0.0-0.2-0.5
	31-41	9.0-13.5-18.0	---	6.6-7.4-7.8	0-5-10	0.0-0.2-0.5
	41-80	3.0-6.5-10.0	---	7.4-7.9-8.4	10-20-30	0.0-0.2-0.5
Haney----------------	0-8	8.0-13.0-18.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	8-15	8.0-13.0-18.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	15-36	10.0-14.0-18.0	7.5-11.0-18.0	4.5-6.2-7.8	0	0.5-0.8-1.0
	36-45	10.0-14.0-18.0	---	6.1-7.4-7.8	0-3-5	0.0-0.2-0.5
	45-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-30	0.0-0.2-0.5
EdxA:						
Eldean---------------	0-7	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	7-10	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	10-26	20.0-27.5-35.0	16.0-25.0-35.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	26-31	15.0-25.0-35.0	---	6.6-7.3-8.4	0-1-30	0.5-0.8-1.0
	31-80	1.0-4.5-8.0	---	7.4-7.9-8.4	40-53-65	0.0-0.2-0.5
EdxB2:						
Eldean---------------	0-7	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	7-23	20.0-27.5-35.0	16.0-25.0-35.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	23-30	15.0-25.0-35.0	---	6.6-7.3-8.4	0-1-30	0.5-0.8-1.0
	30-80	1.0-4.5-8.0	---	7.4-7.9-8.4	40-53-65	0.0-0.2-0.5
EdxC2:						
Eldean---------------	0-7	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	7-23	20.0-27.5-35.0	16.0-25.0-35.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	23-30	15.0-25.0-35.0	---	6.6-7.3-8.4	0-1-30	0.5-0.8-1.0
	30-80	1.0-4.5-8.0	---	7.4-7.9-8.4	40-53-65	0.0-0.2-0.5
EdxD2:						
Eldean---------------	0-7	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	7-23	20.0-27.5-35.0	16.0-25.0-35.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	23-30	15.0-25.0-35.0	---	6.6-7.3-8.4	0-1-30	0.5-0.8-1.0
	30-80	1.0-4.5-8.0	---	7.4-7.9-8.4	40-53-65	0.0-0.2-0.5
EdxE2:						
Eldean---------------	0-5	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	5-11	8.0-14.5-21.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	11-22	20.0-27.5-35.0	16.0-25.0-35.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	22-39	15.0-25.0-35.0	---	6.6-7.3-8.4	0-1-30	0.5-0.8-1.0
	39-80	1.0-4.5-8.0	---	7.4-7.9-8.4	40-53-65	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	meq/100 g	meq/100 g	pH	Pct	Pct
FexB2:						
Fox------------------	0-10	6.0-12.0-18.0	5.0-11.0-18.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	10-19	10.0-17.0-25.0	---	5.6-6.4-7.3	0	0.0-0.5-1.0
	19-31	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.5-1.0
	31-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
FexC2:						
Fox------------------	0-10	6.0-12.0-18.0	5.0-11.0-18.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	10-19	10.0-17.0-25.0	---	5.6-6.4-7.3	0	0.0-0.5-1.0
	19-31	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.5-1.0
	31-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
FgoB2:						
Fox------------------	0-10	6.0-12.0-18.0	5.0-11.0-18.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	10-19	10.0-17.0-25.0	---	5.6-6.4-7.3	0	0.0-0.5-1.0
	19-31	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.2-0.5
	31-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
Muncie---------------	0-6	9.0-13.0-17.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	6-30	14.0-19.5-25.0	---	5.6-6.7-7.8	0-0-5	0.0-0.2-0.5
	30-37	11.0-15.5-20.0	---	7.4-7.8-8.4	5-13-20	0.0-0.2-0.5
	37-56	10.0-14.0-18.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
	56-80	1.0-2.0-3.0	---	7.4-8.1-8.4	25-40-55	0.0-0.2-0.5
FgoC2:						
Fox------------------	0-10	6.0-12.0-18.0	5.0-11.0-18.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	10-19	10.0-17.0-25.0	---	5.6-6.4-7.3	0	0.0-0.5-1.0
	19-31	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.2-0.5
	31-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
Muncie---------------	0-6	9.0-13.0-17.0	---	5.6-6.5-7.3	0	1.0-1.5-2.0
	6-30	14.0-19.5-25.0	---	5.6-6.7-7.8	0-0-5	0.0-0.2-0.5
	30-37	11.0-15.5-20.0	---	7.4-7.8-8.4	5-13-20	0.0-0.2-0.5
	37-56	10.0-14.0-18.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
	56-80	1.0-2.0-3.0	---	7.4-8.1-8.4	25-40-55	0.0-0.2-0.5
FgrC3:						
Fox------------------	0-7	12.0-17.5-25.0	10.0-16.0-25.0	5.1-6.2-7.3	0	0.5-1.2-2.0
	7-23	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.2-0.5
	23-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
Muncie---------------	0-5	10.0-15.5-21.0	---	5.6-6.5-7.3	0	0.5-0.8-1.0
	5-21	14.0-19.5-25.0	---	5.6-6.7-7.8	0-0-5	0.0-0.2-0.5
	21-26	11.0-15.5-20.0	---	7.4-7.8-8.4	5-13-20	0.0-0.2-0.5
	26-56	10.0-14.0-18.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
	56-80	1.0-2.0-3.0	---	7.4-8.1-8.4	25-40-55	0.0-0.2-0.5
FgrD3:						
Fox------------------	0-7	12.0-17.5-25.0	10.0-16.0-25.0	5.1-6.2-7.3	0	0.5-1.2-2.0
	7-23	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.2-0.5
	23-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
Muncie---------------	0-5	10.0-15.5-21.0	---	5.6-6.5-7.3	0	0.5-0.8-1.0
	5-21	14.0-19.5-25.0	---	5.6-6.7-7.8	0-0-5	0.0-0.2-0.5
	21-26	11.0-15.5-20.0	---	7.4-7.8-8.4	5-13-20	0.0-0.2-0.5
	26-56	10.0-14.0-18.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
	56-80	1.0-2.0-3.0	---	7.4-8.1-8.4	25-40-55	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
GlnAH:						
Gessie----------------	0-10	9.0-15.5-22.0	---	7.4-7.9-8.4	5-18-30	1.0-2.0-3.0
	10-43	8.0-15.0-22.0	---	7.4-7.9-8.4	5-18-30	0.5-1.8-3.0
	43-80	3.0-8.5-14.0	---	7.4-7.9-8.4	10-20-30	0.5-0.8-1.0
Eel-------------------	0-10	12.0-16.0-20.0	---	6.1-6.7-7.3	0	2.0-2.5-3.0
	10-22	12.0-16.0-20.0	---	6.1-7.0-7.8	0	1.0-1.5-2.0
	22-34	12.0-16.0-20.0	---	6.1-7.0-7.8	0	1.0-1.5-2.0
	34-42	8.0-13.0-18.0	---	6.6-7.4-7.8	5-15-25	1.0-1.5-2.0
	42-80	6.0-12.0-18.0	---	7.4-7.9-8.4	5-20-35	1.0-1.5-2.0
GlrB2:						
Glynwood-------------	0-7	12.0-17.0-22.0	10.0-15.0-22.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	7-9	12.0-17.0-22.0	10.0-15.0-22.0	5.1-6.2-7.3	0	1.0-1.5-2.0
	9-12	12.0-17.0-22.0	10.0-15.0-22.0	5.1-6.2-7.3	0	0.5-1.2-2.0
	12-23	20.0-26.5-33.0	15.0-24.0-33.0	4.5-6.2-7.8	0-0-5	0.5-0.8-1.0
	23-32	11.0-19.0-27.0	---	6.6-7.9-8.4	0-18-35	0.0-0.2-0.5
	32-80	11.0-19.0-27.0	---	7.4-8.1-8.4	22-29-35	0.0-0.2-0.5
GlyB3:						
Glynwood-------------	0-5	12.0-16.0-20.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	5-17	20.0-26.5-33.0	15.0-24.0-33.0	4.5-6.2-7.8	0-0-5	0.5-0.8-1.0
	17-20	11.0-19.0-27.0	---	6.6-7.9-8.4	0-18-35	0.0-0.2-0.5
	20-80	11.0-19.0-27.0	---	7.4-8.1-8.4	22-29-35	0.0-0.2-0.5
Mississinewa---------	0-5	13.0-14.5-16.0	---	6.1-7.0-7.8	0-1-5	0.5-0.8-1.0
	5-10	9.0-17.0-25.0	---	6.1-7.4-7.8	0-3-5	0.0-0.2-0.5
	10-14	9.0-14.5-20.0	---	7.4-7.9-8.4	10-15-20	0.0-0.2-0.5
	14-80	7.0-9.0-11.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
HtbAN:						
Houghton-------------	0-80	140.0-160.0-180.0	---	5.6-6.7-7.8	0	70-84 -99
HtbAU:						
Houghton-------------	0-80	140.0-160.0-180.0	---	5.6-6.7-7.8	0	70-84 -99
LdfAH:						
Lash-----------------	0-10	10.0-13.5-17.0	---	7.4-7.9-8.4	5-8-10	2.0-3.0-4.0
	10-14	10.0-13.5-17.0	---	7.4-7.9-8.4	5-8-10	2.0-3.0-4.0
	14-52	5.0-10.0-15.0	---	7.4-7.9-8.4	10-15-20	1.0-1.5-2.0
	52-80	3.0-4.5-6.0	---	7.4-7.9-8.4	10-15-20	0.5-1.2-2.0
LneAW:						
Lickcreek------------	0-10	10.0-16.0-22.0	---	5.6-6.5-7.3	0	2.0-3.0-4.0
	10-19	10.0-16.0-22.0	---	5.6-6.5-7.3	0	2.0-3.0-4.0
	19-39	8.0-14.0-20.0	6.0-12.5-20.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	39-54	4.0-12.0-20.0	---	5.6-6.5-7.3	0	0.0-0.5-1.0
	54-80	2.0-6.0-10.0	---	7.4-7.9-8.4	10-20-30	0.0-0.2-0.5
LshC3:						
Losantville----------	0-7	11.0-18.0-25.0	---	6.1-7.0-7.8	0	0.5-1.2-2.0
	7-16	14.0-21.0-28.0	---	6.1-7.0-7.8	0-0-5	0.0-0.2-0.5
	16-80	7.0-11.5-16.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
LshD3:						
Losantville----------	0-7	11.0-18.0-25.0	---	6.1-7.0-7.8	0	0.5-1.2-2.0
	7-16	14.0-21.0-28.0	---	6.1-7.0-7.8	0-0-5	0.0-0.2-0.5
	16-80	7.0-11.5-16.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
LteE:						
Lybrand--------------	0-9	18.0-20.5-23.0	14.0-18.0-23.0	5.1-6.2-7.3	0	2.0-3.0-4.0
	9-21	16.0-20.5-25.0	13.0-18.0-25.0	5.1-6.2-7.3	0	0.5-1.2-2.0
	21-33	16.0-20.5-25.0	---	6.1-7.4-8.4	0-5-20	0.5-1.2-2.0
	33-45	13.0-19.0-25.0	---	7.4-7.9-8.4	10-20-35	0.5-0.8-1.0
	45-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-28-35	0.5-0.8-1.0
Belmore--------------	0-11	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	11-25	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	25-36	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	36-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
LteG:						
Lybrand--------------	0-9	18.0-20.5-23.0	14.0-18.0-23.0	5.1-6.2-7.3	0	2.0-3.0-4.0
	9-21	16.0-20.5-25.0	13.0-18.0-25.0	5.1-6.2-7.3	0	0.5-1.2-2.0
	21-33	16.0-20.5-25.0	---	6.1-7.4-8.4	0-5-20	0.5-1.2-2.0
	33-45	13.0-19.0-25.0	---	7.4-7.9-8.4	10-20-35	0.5-0.8-1.0
	45-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-28-35	0.5-0.8-1.0
Belmore--------------	0-11	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	11-25	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	25-36	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	36-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
MecA:						
Martinsville---------	0-8	5.0-10.5-16.0	4.0-9.0-16.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	8-17	6.0-11.5-17.0	5.0-10.0-17.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	17-43	8.0-12.5-17.0	6.0-11.0-17.0	5.1-6.2-7.3	0	0.0-0.2-0.5
	43-53	2.0-7.0-12.0	---	5.6-6.7-7.8	0-0-10	0.0-0.2-0.5
	53-80	1.0-5.5-10.0	---	7.4-7.9-8.4	10-25-40	0.0-0.2-0.5
MecB:						
Martinsville---------	0-8	5.0-10.5-16.0	4.0-9.0-16.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	8-17	6.0-11.5-17.0	5.0-10.0-17.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	17-43	8.0-12.5-17.0	6.0-11.0-17.0	5.1-6.2-7.3	0	0.0-0.2-0.5
	43-53	2.0-7.0-12.0	---	5.6-6.7-7.8	0-0-10	0.0-0.2-0.5
	53-80	1.0-5.5-10.0	---	7.4-7.9-8.4	10-25-40	0.0-0.2-0.5
MmcB2:						
Miami----------------	0-8	7.0-12.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	8-31	9.0-14.5-20.0	7.0-13.0-20.0	5.1-5.6-7.3	0	0.0-0.2-0.5
	31-36	4.0-7.5-11.0	---	6.6-7.4-7.8	0-10-20	0.0-0.2-0.5
	36-80	2.0-5.5-9.0	---	7.4-7.9-8.4	20-33-45	0.0-0.2-0.5
MmcC2:						
Miami----------------	0-8	7.0-12.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	8-31	9.0-14.5-20.0	7.0-13.0-20.0	5.1-5.6-7.3	0	0.0-0.2-0.5
	31-36	4.0-7.5-11.0	---	6.6-7.4-7.8	0-10-20	0.0-0.2-0.5
	36-80	2.0-5.5-9.0	---	7.4-7.9-8.4	20-33-45	0.0-0.2-0.5
MoeB2:						
Miamian--------------	0-9	10.0-14.0-18.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	9-26	17.0-22.5-28.0	13.0-20.0-28.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	26-33	7.0-11.5-16.0	---	6.6-7.5-7.8	0-13-25	0.0-0.2-0.5
	33-80	7.0-11.5-16.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5
MoeC2:						
Miamian--------------	0-9	10.0-14.0-18.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	9-26	17.0-22.5-28.0	13.0-20.0-28.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	26-33	7.0-11.5-16.0	---	6.6-7.5-7.8	0-13-25	0.0-0.2-0.5
	33-80	7.0-11.5-16.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
MorA:						
Milford--------------	0-13	32.0-43.0-54.0	---	5.6-6.5-7.3	0	10-20 -25
	13-17	22.0-29.0-36.0	---	5.6-6.5-7.3	0	2.0-3.0-4.0
	17-28	20.0-24.5-29.0	---	5.6-7.4-7.8	0-8-15	0.5-1.2-2.0
	28-80	4.0-11.0-18.0	---	7.4-7.9-8.4	5-15-30	0.0-0.5-1.0
MphA:						
Milford--------------	0-11	26.0-31.0-36.0	---	5.6-6.5-7.3	0	4.0-5.0-6.0
	11-29	22.0-25.5-29.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	29-43	22.0-25.5-29.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	43-80	1.0-8.0-15.0	---	7.4-7.9-8.4	5-18-30	0.0-0.5-1.0
MprA:						
Milford--------------	0-13	26.0-31.0-36.0	---	5.6-6.5-7.3	0	4.0-5.0-6.0
	13-49	22.0-25.5-29.0	---	5.6-6.7-7.8	0-0-10	0.5-0.8-1.0
	49-80	4.0-7.5-11.0	---	7.4-7.9-8.4	5-18-30	0.0-0.2-0.5
MryA:						
Millgrove------------	0-8	20.0-26.0-32.0	---	5.6-6.5-7.3	0	3.0-4.5-6.0
	8-15	20.0-26.0-32.0	---	5.6-6.5-7.3	0	3.0-4.0-6.0
	15-32	15.0-22.0-25.0	---	6.1-7.0-7.8	0	0.5-0.8-1.0
	32-48	7.0-12.5-18.0	---	6.1-7.0-7.8	0-0-5	0.5-0.8-1.0
	48-80	3.0-6.5-10.0	---	7.4-7.9-8.4	10-18-25	0.0-0.2-0.5
MumC2:						
Morley---------------	0-9	13.0-16.0-19.0	10.0-14.0-19.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-20	17.0-21.5-26.0	13.0-19.0-26.0	4.5-5.9-7.3	0	0.5-0.8-1.0
	20-29	17.0-20.0-23.0	---	6.1-7.4-7.8	0-10-20	0.5-0.8-1.0
	29-36	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
	36-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
MumD2:						
Morley---------------	0-9	13.0-16.0-19.0	10.0-14.0-19.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-20	17.0-21.5-26.0	13.0-19.0-26.0	4.5-5.9-7.3	0	0.5-0.8-1.0
	20-29	17.0-20.0-23.0	---	6.1-7.4-7.8	0-10-20	0.5-0.8-1.0
	29-36	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
	36-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
MvbC3:						
Morley---------------	0-7	17.0-20.0-23.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	7-20	17.0-21.5-26.0	13.0-19.0-26.0	4.5-6.2-7.3	0	0.5-0.8-1.0
	20-29	17.0-20.0-23.0	---	7.4-7.6-7.8	10-15-20	0.5-0.8-1.0
	29-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
Mississinewa---------	0-5	13.0-14.5-16.0	---	6.1-7.0-7.8	0-1-5	0.5-0.8-1.0
	5-10	9.0-17.0-25.0	---	6.1-7.4-7.8	0-3-5	0.0-0.2-0.5
	10-14	9.0-14.5-20.0	---	7.4-7.9-8.4	10-15-20	0.0-0.2-0.5
	14-80	7.0-9.0-11.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5
MvbD3:						
Morley---------------	0-7	17.0-20.0-23.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	7-20	17.0-21.5-26.0	13.0-19.0-26.0	4.5-6.2-7.3	0	0.5-0.8-1.0
	20-29	17.0-20.0-23.0	---	7.4-7.6-7.8	10-15-20	0.5-0.8-1.0
	29-80	13.0-15.5-18.0	---	7.9-8.2-8.4	20-25-30	0.0-0.2-0.5
Mississinewa---------	0-5	13.0-14.5-16.0	---	6.1-7.0-7.8	0-1-5	0.5-0.8-1.0
	5-10	9.0-17.0-25.0	---	6.1-7.4-7.8	0-3-5	0.0-0.2-0.5
	10-14	9.0-14.5-20.0	---	7.4-7.9-8.4	10-15-20	0.0-0.2-0.5
	14-80	7.0-9.0-11.0	---	7.4-8.1-8.4	20-28-35	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
MvxA:						
Mountpleasant--------	0-8	9.0-13.0-17.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	8-23	12.0-18.5-25.0	10.0-17.5-25.0	5.1-6.8-8.4	0-0-25	0.0-0.5-1.0
	23-58	8.0-14.0-20.0	---	7.4-7.9-8.4	20-30-40	0.0-0.2-0.5
	58-86	5.0-6.5-8.0	---	7.9-8.2-8.4	30-38-45	0.0-0.2-0.5
	86-110	1.0-9.0-17.0	---	7.4-7.9-8.4	5-23-45	0.0-0.5-1.0
	110-118	1.0-2.0-3.0	---	7.9-8.2-8.4	35-45-55	0.0-0.2-0.5
MvxB2:						
Mountpleasant--------	0-8	9.0-13.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	8-23	12.0-18.5-25.0	10.0-18.0-25.0	5.1-6.8-8.4	0-0-25	0.0-0.5-1.0
	23-58	8.0-14.0-20.0	---	7.4-7.9-8.4	20-30-40	0.0-0.2-0.5
	58-86	5.0-6.5-8.0	---	7.9-8.2-8.4	30-38-45	0.0-0.2-0.5
	86-110	1.0-9.0-17.0	---	7.4-7.9-8.4	5-23-45	0.0-0.5-1.0
	110-118	1.0-2.0-3.0	---	7.9-8.2-8.4	35-45-55	0.0-0.2-0.5
MvxC2:						
Mountpleasant--------	0-8	9.0-13.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	8-23	12.0-18.5-25.0	10.0-18.0-25.0	5.1-6.8-8.4	0-0-25	0.0-0.5-1.0
	23-58	8.0-14.0-20.0	---	7.4-7.9-8.4	20-30-40	0.0-0.2-0.5
	58-86	5.0-6.5-8.0	---	7.9-8.2-8.4	30-38-45	0.0-0.2-0.5
	86-110	1.0-9.0-17.0	---	7.4-7.9-8.4	5-23-45	0.0-0.5-1.0
	110-118	1.0-2.0-3.0	---	7.9-8.2-8.4	35-45-55	0.0-0.2-0.5
MwzAN:						
Muskego--------------	0-9	140.0-160.0-180.0	---	5.6-6.5-7.3	0	60-75 -90
	9-27	150.0-170.0-190.0	---	5.6-6.5-7.3	0	60-75 -90
	27-80	10.0-27.5-45.0	---	6.6-7.5-8.4	0-1-60	6.0-13 -20
MwzAU:						
Muskego--------------	0-9	140.0-160.0-180.0	---	5.6-6.5-7.3	0	60-75 -90
	9-27	150.0-170.0-190.0	---	5.6-6.5-7.3	0	60-75 -90
	27-80	10.0-27.5-45.0	---	6.6-7.5-8.4	0-1-60	6.0-13 -20
ObxA:						
Ockley---------------	0-10	5.0-10.0-15.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	10-15	5.0-10.0-15.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	15-18	8.0-14.0-20.0	6.0-12.0-19.0	4.5-5.5-6.5	0	0.5-0.8-1.0
	18-37	8.0-14.0-20.0	6.0-12.0-19.0	4.5-5.5-6.5	0	0.5-0.8-1.0
	37-49	4.0-11.0-18.0	3.0-10.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	49-80	1.0-2.0-3.0	---	7.4-7.9-8.4	20-35-50	0.0-0.2-0.5
ObxB2:						
Ockley---------------	0-9	5.0-10.0-15.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	9-16	8.0-14.0-20.0	6.0-12.0-19.0	4.5-5.5-6.5	0	0.5-0.8-1.0
	16-34	8.0-14.0-20.0	6.0-12.0-19.0	4.5-5.5-6.5	0	0.5-0.8-1.0
	34-48	4.0-11.0-18.0	3.0-10.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	48-80	1.0-2.0-3.0	---	7.4-7.9-8.4	20-35-50	0.0-0.2-0.5
PgaA:						
Pella----------------	0-11	25.0-27.5-30.0	---	6.1-7.0-7.8	0	4.0-5.0-6.0
	11-14	25.0-27.5-30.0	---	6.1-7.0-7.8	0	2.0-4.0-6.0
	14-29	15.0-21.0-25.0	---	6.6-7.2-7.8	0-0-10	1.0-1.5-2.0
	29-34	10.0-15.0-20.0	---	7.4-7.9-8.4	5-18-30	0.5-0.8-1.0
	34-80	6.0-12.0-20.0	---	7.4-8.1-8.4	5-23-40	0.0-0.5-1.0
PkkA:						
Pewamo---------------	0-10	12.0-18.0-25.0	---	6.1-6.7-7.3	0	3.0-4.5-6.0
	10-34	14.0-22.0-30.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	34-57	14.0-22.0-30.0	---	6.1-7.0-7.8	0-0-5	0.5-1.2-2.0
	57-80	10.0-15.0-20.0	---	7.4-7.9-8.4	15-23-30	0.0-0.5-1.0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
Pmg:						
Pits, gravel.						
Pml:						
Pits, quarry.						
ReyA:						
Rensselaer-----------	0-11	10.0-19.5-29.0	---	6.1-6.7-7.3	0	3.0-4.5-6.0
	11-15	10.0-19.5-29.0	---	6.1-6.7-7.3	0	2.0-4.0-6.0
	15-38	10.0-17.0-24.0	---	6.1-6.7-7.3	0	0.5-1.2-2.0
	38-42	10.0-15.0-20.0	---	6.6-7.4-7.8	0-5-10	0.5-0.8-1.0
	42-80	1.0-7.0-13.0	---	7.4-7.9-8.4	5-15-25	0.0-0.2-0.5
RroAH:						
Ross-----------------	0-8	12.0-19.0-26.0	---	6.1-7.0-7.8	0	2.0-3.0-4.0
	8-29	12.0-19.0-26.0	---	6.1-7.0-7.8	0	2.0-3.0-4.0
	29-40	10.0-15.0-20.0	---	6.1-7.3-8.4	0-0-20	1.0-1.5-2.0
	40-80	2.0-8.5-15.0	---	6.1-7.8-8.4	0-15-30	0.5-1.2-2.0
Lash-----------------	0-10	10.0-13.5-17.0	---	7.4-7.9-8.4	5-8-10	2.0-3.0-4.0
	10-14	10.0-13.5-17.0	---	7.4-7.9-8.4	5-8-10	2.0-3.0-4.0
	14-52	5.0-10.0-15.0	---	7.4-7.9-8.4	10-15-20	1.0-1.5-2.0
	52-80	3.0-4.5-6.0	---	7.4-7.9-8.4	10-15-20	0.5-1.2-2.0
RrwB:						
Rawson---------------	0-10	7.0-11.0-15.0	6.0-10.0-15.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	10-20	5.0-10.0-18.0	8.0-13.0-22.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	20-39	7.0-13.0-21.0	8.0-13.0-22.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	39-43	10.0-18.0-25.0	---	6.6-7.5-8.4	0-10-20	0.0-0.2-0.5
	43-80	10.0-15.0-20.0	---	7.4-7.9-8.4	17-25-30	0.0-0.2-0.5
SgmAH:						
Shoals---------------	0-8	12.0-19.5-27.0	---	6.6-7.2-7.8	0-0-5	2.0-3.0-4.0
	8-13	12.0-19.5-27.0	---	6.6-7.2-7.8	0-0-5	2.0-3.0-4.0
	13-30	8.0-16.0-24.0	---	6.6-7.2-7.8	0-0-10	0.5-1.2-2.0
	30-80	3.0-11.0-19.0	---	6.6-7.5-8.4	0-13-25	0.5-1.2-2.0
SmsAH:						
Sloan----------------	0-9	13.0-19.5-26.0	---	6.1-7.0-7.8	0-0-5	3.0-4.5-6.0
	9-15	13.0-19.5-26.0	---	6.1-7.0-7.8	0-0-5	3.0-4.5-6.0
	15-34	12.0-18.0-24.0	---	6.1-7.0-7.8	0-0-5	0.5-1.2-2.0
	34-45	12.0-18.0-24.0	---	6.6-7.5-8.4	0-5-20	0.5-1.2-2.0
	45-80	4.0-11.0-18.0	---	6.6-7.8-8.4	0-23-40	0.0-0.8-1.5
SnlA:						
Southwest------------	0-10	10.0-12.5-15.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	10-23	10.0-12.5-15.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	23-34	20.0-28.0-36.0	---	6.1-6.7-7.8	0	3.0-4.5-6.0
	34-45	10.0-15.0-20.0	---	6.1-6.7-7.8	0	0.5-0.8-1.0
	45-75	10.0-21.5-33.0	---	6.1-6.7-7.8	0-0-15	2.0-3.5-5.0
	75-80	2.0-8.5-15.0	---	7.4-7.9-8.4	5-15-25	0.0-0.5-1.0
SvsE2:						
Strawn---------------	0-7	7.0-12.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	7-22	10.0-15.0-20.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	22-80	4.0-6.5-9.0	---	7.4-7.9-8.4	5-23-40	0.0-0.2-0.5
Belmore--------------	0-11	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	11-25	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	25-36	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	36-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	meq/100 g	meq/100 g	pH	Pct	Pct
SvsG:						
Strawn---------------	0-7	7.0-12.0-17.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	7-22	10.0-15.0-20.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	22-80	4.0-6.5-9.0	---	7.4-7.9-8.4	5-23-40	0.0-0.2-0.5
Belmore--------------	0-11	7.0-12.5-18.0	---	5.6-6.5-7.3	0	1.0-2.0-3.0
	11-25	8.0-13.0-18.0	6.0-12.0-18.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	25-36	8.0-13.0-18.0	---	5.6-6.7-7.8	0-0-5	0.5-0.8-1.0
	36-80	3.0-6.5-10.0	---	7.4-7.9-8.4	5-18-35	0.0-0.2-0.5
ThrA:						
Treaty---------------	0-10	27.0-31.5-36.0	---	5.6-6.5-7.3	0	3.0-4.5-6.0
	10-14	27.0-31.5-36.0	---	5.6-6.5-7.3	0	2.0-4.0-6.0
	14-36	18.0-19.0-20.0	---	6.1-7.0-7.8	0	1.0-1.5-2.0
	36-59	18.0-19.0-20.0	---	6.6-7.5-8.4	0-13-25	0.5-0.8-1.0
	59-80	2.0-5.5-9.0	---	7.4-7.9-8.4	15-28-40	0.0-0.5-1.0
Uam:						
Udorthents-----------	0-60	6.0-13.5-21.0	---	6.1-7.4-8.4	0-13-25	0.0-0.2-0.5
UccA:						
Urban land.						
Crosby---------------	0-8	6.0-13.0-20.0	5.0-12.0-20.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	8-11	6.0-12.0-18.0	5.0-10.0-18.0	5.1-6.2-7.3	0	1.0-1.5-2.0
	11-14	7.0-12.5-18.0	6.0-10.0-18.0	5.1-5.5-7.3	0	0.5-0.8-1.0
	14-28	15.0-22.0-29.0	12.0-20.0-29.0	5.1-6.2-7.3	0	0.5-0.8-1.0
	28-36	5.0-11.0-17.0	---	7.4-7.8-8.4	5-23-40	0.0-0.2-0.5
	36-80	4.0-10.0-16.0	---	7.4-8.1-8.4	20-35-50	0.0-0.2-0.5
Treaty---------------	0-10	27.0-31.5-36.0	---	5.6-6.5-7.3	0	3.0-4.5-6.0
	10-14	27.0-31.5-36.0	---	5.6-6.5-7.3	0	2.0-4.0-6.0
	14-37	18.0-19.0-20.0	---	6.1-7.0-7.8	0	1.0-1.5-2.0
	37-48	18.0-19.0-20.0	---	6.6-7.5-8.4	0-13-25	0.5-0.8-1.0
	48-80	2.0-5.5-9.0	---	7.4-7.9-8.4	15-28-40	0.0-0.5-1.0
Ucu:						
Udorthents-----------	0-60	0.5-2.5-5.0	---	6.1-7.4-8.4	0-25-50	0.0-0.5-1.0
UdmA:						
Urban land.						
Blount---------------	0-7	17.0-19.5-22.0	13.0-17.5-22.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	7-23	21.0-25.5-30.0	17.0-23.0-30.0	5.1-6.2-7.3	0	0.0-0.5-1.0
	23-30	16.0-20.5-25.0	---	6.1-7.4-7.8	0-5-10	0.0-0.2-0.5
	30-42	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
	42-80	16.0-20.5-25.0	---	7.4-7.9-8.4	22-28-35	0.0-0.2-0.5
Pewamo---------------	0-10	12.0-18.0-25.0	---	6.1-6.7-7.3	0	3.0-4.5-6.0
	10-34	14.0-22.0-30.0	---	5.6-6.5-7.3	0	0.5-1.2-2.0
	34-57	14.0-22.0-30.0	---	6.1-7.0-7.8	0-0-5	0.5-1.2-2.0
	57-80	10.0-15.0-20.0	---	7.4-7.9-8.4	15-23-30	0.0-0.5-1.0
UemB:						
Urban land.						
Fox------------------	0-10	6.0-12.0-18.0	5.0-11.0-18.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	10-19	10.0-17.0-25.0	---	5.6-6.4-7.3	0	0.0-0.5-1.0
	19-31	10.0-17.0-25.0	---	5.6-6.7-7.8	0-0-25	0.0-0.5-1.0
	31-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-35-45	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
UetB:						
Urban land.						
Glynwood	0-9	12.0-17.0-22.0	10.0-15.0-22.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-23	20.0-26.5-33.0	15.0-24.0-33.0	4.5-6.2-7.8	0-0-5	0.5-0.8-1.0
	23-32	11.0-19.0-27.0	---	6.6-7.9-8.4	0-18-35	0.0-0.2-0.5
	32-80	11.0-19.0-27.0	---	7.4-7.9-8.4	22-29-35	0.0-0.2-0.5
UfuA:						
Urban land.						
Millgrove	0-8	20.0-26.0-32.0	---	5.6-6.5-7.3	0	3.0-4.5-6.0
	8-15	20.0-26.0-32.0	---	5.6-6.5-7.3	0	3.0-4.0-6.0
	15-32	15.0-22.0-25.0	---	6.1-7.0-7.8	0	0.5-0.8-1.0
	32-48	7.0-11.0-15.0	---	6.1-7.0-7.8	0-0-5	0.5-0.8-1.0
	48-80	3.0-6.5-10.0	---	7.4-7.9-8.4	10-18-25	0.0-0.2-0.5
UhaB:						
Urban land.						
Wawaka	0-9	4.0-10.5-17.0	3.0-9.5-17.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-35	11.0-15.5-20.0	---	5.6-7.0-8.4	0-0-20	0.0-0.5-1.0
	35-39	8.0-12.0-16.0	---	7.4-7.9-8.4	20-25-30	0.0-0.2-0.5
	39-84	4.0-6.5-9.0	---	7.4-7.9-8.4	30-35-45	0.0-0.2-0.5
	84-96	4.0-12.0-20.0	---	7.4-7.9-8.4	5-25-45	0.0-0.2-0.5
	96-99	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50	0.0-0.2-0.5
Miami	0-8	7.0-12.0-17.0	---	5.6-6.5-7.3	0	1.0-1.8-3.0
	8-31	9.0-14.5-20.0	7.0-12.0-20.0	5.1-5.6-7.3	0	0.0-0.2-0.5
	31-36	4.0-7.5-11.0	---	6.6-7.4-7.8	0-10-20	0.0-0.2-0.5
	36-80	2.0-5.5-9.0	---	7.4-7.9-8.4	20-33-45	0.0-0.2-0.5
W:						
Water.						
WbgB3:						
Wapahani	0-5	10.0-15.0-20.0	---	6.1-7.0-7.8	0	0.5-0.8-1.0
	5-16	9.0-14.5-20.0	---	6.1-7.0-7.8	0-0-5	0.0-0.2-0.5
	16-20	5.0-10.5-16.0	---	7.4-7.8-8.4	5-18-30	0.0-0.2-0.5
	20-80	2.0-5.5-9.0	---	7.4-8.1-8.4	25-35-45	0.0-0.2-0.5
WbgC3:						
Wapahani	0-5	10.0-15.0-20.0	---	6.1-7.0-7.8	0	0.5-0.8-1.0
	5-16	9.0-14.5-20.0	---	6.1-7.0-7.8	0-0-5	0.0-0.2-0.5
	16-20	5.0-10.5-16.0	---	7.4-7.8-8.4	5-18-30	0.0-0.2-0.5
	20-80	2.0-5.5-9.0	---	7.4-8.1-8.4	25-35-45	0.0-0.2-0.5
WdrA:						
Wawaka	0-9	4.0-10.5-17.0	3.0-9.5-17.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	9-35	11.0-15.5-20.0	---	5.6-7.0-8.4	0-0-20	0.0-0.5-1.0
	35-39	8.0-12.0-16.0	---	7.4-7.9-8.4	20-25-30	0.0-0.2-0.5
	39-84	4.0-6.5-9.0	---	7.4-7.9-8.4	30-35-45	0.0-0.2-0.5
	84-96	4.0-12.0-20.0	---	7.4-7.9-8.4	5-25-45	0.0-0.2-0.5
	96-99	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50	0.0-0.2-0.5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate equivalent	Organic matter
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*
WdrB2:						
Wawaka---------------	0-9	4.0-10.5-17.0	3.0-9.5-17.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-35	11.0-15.5-20.0	---	5.6-7.0-8.4	0-0-20	0.0-0.5-1.0
	35-39	8.0-12.0-16.0	---	7.4-7.9-8.4	20-25-30	0.0-0.2-0.5
	39-84	4.0-6.5-9.0	---	7.4-7.9-8.4	30-35-45	0.0-0.2-0.5
	84-96	4.0-12.0-20.0	---	7.4-7.9-8.4	5-25-45	0.0-0.2-0.5
	96-99	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50	0.0-0.2-0.5
WdrC2:						
Wawaka---------------	0-9	4.0-10.5-17.0	3.0-9.5-17.0	5.1-6.2-7.3	0	1.0-1.8-3.0
	9-35	11.0-15.5-20.0	---	5.6-7.0-8.4	0-0-20	0.0-0.5-1.0
	35-39	8.0-12.0-16.0	---	7.4-7.9-8.4	20-25-30	0.0-0.2-0.5
	39-84	4.0-6.5-9.0	---	7.4-7.9-8.4	30-35-45	0.0-0.2-0.5
	84-96	4.0-12.0-20.0	---	7.4-7.9-8.4	5-25-45	0.0-0.2-0.5
	96-99	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50	0.0-0.2-0.5
WonA:						
Williamstown---------	0-9	4.0-10.5-17.0	3.0-9.5-17.0	5.1-6.2-7.3	0	1.0-2.0-3.0
	9-33	10.0-15.0-20.0	8.0-13.5-20.0	4.5-6.2-7.3	0	0.5-0.8-1.0
	33-37	6.0-11.0-16.0	---	6.6-7.5-8.4	0-18-35	0.0-0.2-0.5
	37-80	2.0-5.5-9.0	---	7.4-7.9-8.4	20-33-45	0.0-0.2-0.5

Table 19.--Water Features

[See text for definitions of terms used in this table. Estimates of the frequency of flooding are based on stream gauge data where the data are available and extrapolated where data are not available. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro-logic group	Month	Water Table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
BdhAH:									
Bellcreek------	C	Jan	0.0-0.5	> 6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		Feb-Mar	0.0-0.5	> 6.0	0.0-1.0	Long	Frequent	Brief	Frequent
		Apr	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Frequent
		May	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Occasional
		Jun	0.5-2.5	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul	2.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Aug	3.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Sep	3.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Oct	2.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Nov	0.5-2.5	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Dec	0.0-2.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Occasional
BdlC2:									
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
BdmA:									
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
BdmB2:									
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
BdsAN:									
Benadum--------	C	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Apr-May	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	---	None
		Jun	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	3.0-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-2.0	> 6.0	0.0-1.0	Brief	Frequent	---	None
BdsAU:									
Benadum--------	D	Jan-Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Jul-Aug	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	---	None
		Sep	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct-Nov	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	---	None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
BltA:									
Blount---------	C	Jan-Mar	0.5-2.0	2.5-4.0	---	---	None	---	None
		Apr	0.5-3.0	2.5-4.0	---	---	None	---	None
		May-Jun	1.5-3.5	2.5-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	2.5-4.0	---	---	None	---	None
		Dec	0.5-3.0	2.5-4.0	---	---	None	---	None
BmlA:									
Blount---------	C	Jan-Mar	0.5-2.0	2.5-4.0	---	---	None	---	None
		Apr	0.5-3.0	2.5-4.0	---	---	None	---	None
		May-Jun	1.5-3.5	2.5-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	2.5-4.0	---	---	None	---	None
		Dec	0.5-3.0	2.5-4.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
BmlA:									
Del Rey--------	C	Jan-Mar	0.5-2.0	2.0-4.0	---	---	None	---	None
		Apr	0.5-3.0	2.0-4.0	---	---	None	---	None
		May-Jun	1.5-3.5	2.0-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	2.0-4.0	---	---	None	---	None
		Dec	0.5-3.0	2.0-4.0	---	---	None	---	None
CdgC3:									
Casco----------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
CudA:									
Crosby---------	C	Jan-Mar	0.5-2.0	2.0-3.5	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.5	---	---	None	---	None
		May	1.5-3.0	2.0-3.5	---	---	None	---	None
		Jun	1.5-3.5	2.0-3.5	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.5-3.5	2.0-3.5	---	---	None	---	None
		Nov	1.5-3.0	2.0-3.5	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.5	---	---	None	---	None
DdxA:									
Digby----------	B	Jan-Mar	0.5-2.0	> 6.0	---	---	None	---	None
		Apr	0.5-3.0	> 6.0	---	---	None	---	None
		May-Jun	1.5-3.5	> 6.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	> 6.0	---	---	None	---	None
		Dec	0.5-3.0	> 6.0	---	---	None	---	None
Haney----------	B	Jan-Mar	1.0-2.5	> 6.0	---	---	None	---	None
		Apr	1.0-3.5	> 6.0	---	---	None	---	None
		May-Jun	2.5-6.7	> 6.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-6.7	> 6.0	---	---	None	---	None
		Dec	1.0-3.5	> 6.0	---	---	None	---	None
EdxA:									
Eldean---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
EdxB2:									
Eldean---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
EdxC2:									
Eldean---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
EdxD2:									
Eldean---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
EdxE2:									
Eldean---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
FexB2:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
FexC2:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
FgoB2:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Muncie---------	C	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
FgoC2:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Muncie---------	C	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
FgrC3:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Muncie---------	C	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
FgrD3:									
Fox------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Muncie---------	C	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
GlnAH:									
Gessie---------	B	Jan	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Feb-Apr	> 6.0	> 6.0	---	---	None	Brief	Frequent
		May-Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Oct	> 6.0	> 6.0	---	---	None	Brief	Rare
		Nov-Dec	> 6.0	> 6.0	---	---	None	Brief	Occasional
Eel------------	B	Jan	1.5-2.5	> 6.0	---	---	None	Brief	Occasional
		Feb-Mar	1.5-2.5	> 6.0	---	---	None	Brief	Frequent
		Apr	1.5-3.5	> 6.0	---	---	None	Brief	Frequent
		May-Jun	2.5-6.7	> 6.0	---	---	None	Brief	Occasional
		Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Sep	> 6.0	> 6.0	---	---	None	Brief	Rare
		Oct	2.5-6.7	> 6.0	---	---	None	Brief	Rare
		Nov	2.5-6.7	> 6.0	---	---	None	Brief	Occasional
		Dec	1.5-3.5	> 6.0	---	---	None	Brief	Occasional
GlrB2:									
Glynwood-------	C	Jan-Mar	1.0-2.5	2.0-4.0	---	---	None	---	None
		Apr	1.5-3.0	2.0-4.0	---	---	None	---	None
		May	1.5-3.5	2.0-4.0	---	---	None	---	None
		Jun	1.5-4.0	2.0-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.5-4.0	2.0-4.0	---	---	None	---	None
		Nov	1.5-3.5	2.0-4.0	---	---	None	---	None
		Dec	1.0-3.0	2.0-4.0	---	---	None	---	None
GlyB3:									
Glynwood-------	C	Jan-Mar	1.0-2.0	1.5-3.5	---	---	None	---	None
		Apr	1.0-2.5	1.5-3.5	---	---	None	---	None
		May	1.0-3.0	1.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.0-3.5	1.5-3.5	---	---	None	---	None
		Nov	1.0-2.5	1.5-3.5	---	---	None	---	None
		Dec	1.0-2.0	1.5-3.5	---	---	None	---	None
Mississinewa---	C	Jan-May	1.0-2.0	1.5-2.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.0-2.5	1.5-2.5	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
HtbAN:									
Houghton-------	A	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Apr	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		May	0.0-2.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	1.5-4.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	4.0-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	1.5-4.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
HtbAU:									
Houghton-------	D	Jan-Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Jul-Aug	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Sep	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct-Nov	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
LdfAH:									
Lash-----------	B	Jan	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Feb-Apr	> 6.0	> 6.0	---	---	None	Brief	Frequent
		May-Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Oct	> 6.0	> 6.0	---	---	None	Brief	Rare
		Nov-Dec	> 6.0	> 6.0	---	---	None	Brief	Occasional
LneAW:									
Lickcreek------	B	Jan-Jun	> 6.0	> 6.0	---	---	None	Very brief	Occasional
		Jul-Nov	> 6.0	> 6.0	---	---	None	Very brief	Rare
		Dec	> 6.0	> 6.0	---	---	None	Very brief	Occasional
LshC3:									
Losantville----	C	Jan-Apr	1.0-2.0	1.5-2.5	---	---	None	---	None
		May-Oct	> 6.0	> 6.0	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
LshD3:									
Losantville----	C	Jan-Apr	1.0-2.0	1.5-2.5	---	---	None	---	None
		May-Oct	> 6.0	> 6.0	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
LteE:									
Lybrand--------	C	Jan	> 6.0	> 6.0	---	---	None	---	None
		Feb-Apr	3.3-6.0	3.5-6.0	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	None	---	None
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
LteG:									
Lybrand--------	C	Jan	> 6.0	> 6.0	---	---	None	---	None
		Feb-Apr	3.3-6.0	3.5-6.0	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	None	---	None
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
MecA:									
Martinsville---	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
MecB:									
Martinsville---	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
MmcB2:									
Miami----------	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MmcC2:									
Miami----------	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MoeB2:									
Miamian--------	C	Jan-Apr	2.0-3.3	2.5-3.5	---	---	None	---	None
		May	2.5-3.3	2.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.3	2.5-3.5	---	---	None	---	None
		Dec	2.0-3.3	2.5-3.5	---	---	None	---	None
MoeC2:									
Miamian--------	C	Jan-Apr	2.0-3.3	2.5-3.5	---	---	None	---	None
		May	2.5-3.3	2.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.3	2.5-3.5	---	---	None	---	None
		Dec	2.0-3.3	2.5-3.5	---	---	None	---	None
MorA:									
Milford--------	D	Jan-Apr	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		May	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Jun	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-2.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
MphA:									
Milford--------	B	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Apr-May	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Jun	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-2.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
MprA:									
Milford--------	B	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Apr-May	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Jun	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	2.5-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	0.5-2.5	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-2.0	> 6.0	0.0-2.0	Brief	Frequent	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
MryA:									
Millgrove------	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
MumC2:									
Morley---------	C	Jan-Apr	2.0-3.3	2.5-3.5	---	---	None	---	None
		May	2.5-3.3	2.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.3	2.5-3.5	---	---	None	---	None
		Dec	2.0-3.3	2.5-3.5	---	---	None	---	None
MumD2:									
Morley---------	C	Jan-Apr	2.0-3.3	2.5-3.5	---	---	None	---	None
		May	2.5-3.3	2.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.5-3.3	2.5-3.5	---	---	None	---	None
		Dec	2.0-3.3	2.5-3.5	---	---	None	---	None
MvbC3:									
Morley---------	C	Jan-Apr	1.5-3.3	2.0-3.5	---	---	None	---	None
		May	2.0-3.5	2.0-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.0-3.5	2.0-3.5	---	---	None	---	None
		Dec	1.5-3.3	2.0-3.5	---	---	None	---	None
Mississinewa---	C	Jan-Apr	1.0-2.0	1.5-2.5	---	---	None	---	None
		May	1.0-2.5	1.5-2.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.0-2.5	1.5-2.5	---	---	None	---	None
		Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
MvbD3:									
Morley---------	C	Jan-Apr	1.5-3.3	2.0-3.5	---	---	None	---	None
		May	2.0-3.5	2.0-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.0-3.5	2.0-3.5	---	---	None	---	None
		Dec	1.5-3.3	2.0-3.5	---	---	None	---	None
Mississinewa---	C	Jan-May	1.0-2.0	1.5-2.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.0-2.5	1.5-2.5	---	---	None	---	None
		Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
MvxA:									
Mountpleasant--	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
MvxB2:									
Mountpleasant--	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
MvxC2:									
Mountpleasant--	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
MwzAN:									
Muskego--------	A	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Apr	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		May	0.0-2.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Jul	1.5-4.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Aug-Sep	4.0-6.7	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct	1.5-4.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Dec	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
MwzAU:									
Muskego--------	D	Jan-Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
		Jul-Aug	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Sep	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional	---	None
		Oct-Nov	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent	---	None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent	---	None
ObxA:									
Ockley---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
ObxB2:									
Ockley---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
PgaA:									
Pella----------	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
PkkA:									
Pewamo---------	C	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	---	---	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
Pmg:									
Pits, gravel.									
Pml:									
Pits, quarry.									
ReyA:									
Rensselaer-----	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
RroAH:									
Ross-----------	B	Jan	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Feb-Apr	4.0-6.7	> 6.0	---	---	None	Brief	Frequent
		May-Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Oct	> 6.0	> 6.0	---	---	None	Brief	Rare
		Nov-Dec	> 6.0	> 6.0	---	---	None	Brief	Occasional
Lash-----------	B	Jan	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Feb-Apr	> 6.0	> 6.0	---	---	None	Brief	Frequent
		May-Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Oct	> 6.0	> 6.0	---	---	None	Brief	Rare
		Nov-Dec	> 6.0	> 6.0	---	---	None	Brief	Occasional
RrwB:									
Rawson---------	B	Jan-Jun	2.0-3.3	2.5-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Dec	2.0-3.3	2.5-4.0	---	---	None	---	None
SgmAH:									
Shoals---------	C	Jan	0.5-2.0	> 6.0	---	---	None	Brief	Occasional
		Feb-Mar	0.5-2.0	> 6.0	---	---	None	Brief	Frequent
		Apr	0.5-3.0	> 6.0	---	---	None	Brief	Frequent
		May-Jun	1.5-3.5	> 6.0	---	---	None	Brief	Occasional
		Jul	> 6.0	> 6.0	---	---	None	Brief	Occasional
		Aug-Sep	> 6.0	> 6.0	---	---	None	Brief	Rare
		Oct	1.5-3.5	> 6.0	---	---	None	Brief	Rare
		Nov	1.5-3.5	> 6.0	---	---	None	Brief	Occasional
		Dec	0.5-3.0	> 6.0	---	---	None	Brief	Occasional
SmsAH:									
Sloan----------	B	Jan	0.0-1.0	> 6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		Feb-Mar	0.0-1.0	> 6.0	0.0-1.0	Long	Frequent	Brief	Frequent
		Apr	0.0-1.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Frequent
		May	0.0-2.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Occasional
		Jun	0.5-2.5	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul	2.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Aug	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Oct	2.5-6.7	> 6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Nov	0.5-2.5	> 6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Dec	0.0-2.0	> 6.0	0.0-1.0	Brief	Frequent	Brief	Occasional
SnlA:									
Southwest------	C	Jan-Mar	0.0-0.5	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		May	0.0-2.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
SvsE2:									
Strawn---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
SvsG:									
Strawn---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Belmore--------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
ThrA:									
Treaty----------	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
Uam:									
Udorthents------	C	Jan-Feb	> 6.0	> 6.0	---	---	None	---	None
		Mar-May	2.5-6.0	> 6.0	---	---	None	---	None
		Jun-Dec	> 6.0	> 6.0	---	---	None	---	None
UccA:									
Urban land.									
Crosby----------	C	Jan-Mar	0.5-2.0	2.0-3.5	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.5	---	---	None	---	None
		May	1.5-3.0	2.0-3.5	---	---	None	---	None
		Jun	1.5-3.5	2.0-3.5	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.5-3.5	2.0-3.5	---	---	None	---	None
		Nov	1.5-3.0	2.0-3.5	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.5	---	---	None	---	None
Treaty----------	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
Ucu:									
Udorthents------	A	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
UdmA:									
Urban land.									
Blount----------	C	Jan-Mar	0.5-2.0	2.5-4.0	---	---	None	---	None
		Apr	0.5-3.0	2.5-4.0	---	---	None	---	None
		May-Jun	1.5-3.5	2.5-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	2.5-4.0	---	---	None	---	None
		Dec	0.5-3.0	2.5-4.0	---	---	None	---	None
Pewamo----------	C	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
UemB:									
Urban land.									
Fox-------------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water Table: Upper limit	Water Table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
UetB:									
Urban land.									
Glynwood-------	C	Jan-Mar	1.0-2.5	2.0-4.0	---	---	None	---	None
		Apr-May	1.5-2.5	2.0-4.0	---	---	None	---	None
		Jun	1.5-4.0	2.0-4.0	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.5-4.0	2.0-4.0	---	---	None	---	None
		Nov	1.5-2.5	2.0-4.0	---	---	None	---	None
		Dec	1.0-2.5	2.0-4.0	---	---	None	---	None
UfuA:									
Urban land.									
Millgrove------	B	Jan-Mar	0.0-1.0	> 6.0	0.0-0.5	Long	Frequent	---	None
		Apr-May	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	> 6.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.0-6.7	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.0	> 6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-3.0	> 6.0	0.0-0.5	Brief	Frequent	---	None
UhaB:									
Urban land.									
Wawaka---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
Miami----------	B	Jan-Apr	2.0-3.3	2.5-3.5	---	---	None	---	None
		May	2.0-3.5	2.5-3.5	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct-Nov	2.0-3.5	2.5-3.5	---	---	None	---	None
		Dec	2.0-3.3	2.5-3.5	---	---	None	---	None
W:									
Water.									
WbgB3:									
Wapahani-------	C	Jan-May	1.0-2.0	1.5-2.5	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
WbgC3:									
Wapahani-------	C	Jan-May	1.0-2.0	1.5-2.5	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	---	---	None	---	None
WdrA:									
Wawaka---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
WdrB2:									
Wawaka---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None
WdrC2:									
Wawaka---------	B	Jan-Dec	> 6.0	> 6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water Table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
WonA:									
Williamstown---	C	Jan-Mar	1.0-2.5	2.0-3.5	---	---	None	---	None
		Apr	1.5-2.5	2.0-3.5	---	---	None	---	None
		May	1.5-3.0	2.0-3.5	---	---	None	---	None
		Jun	1.5-3.5	2.0-3.5	---	---	None	---	None
		Jul-Sep	> 6.0	> 6.0	---	---	None	---	None
		Oct	1.5-3.5	2.0-3.5	---	---	None	---	None
		Nov	1.5-3.0	2.0-3.5	---	---	None	---	None
		Dec	1.0-2.5	2.0-3.5	---	---	None	---	None

Table 20.--Soil Features

[See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or the data were not estimated]

Map symbol and soil name	Restrictive layer		Subsidence		Potential for frost action	Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Initial	Total			Uncoated steel	Concrete
		In	In	In				
BdhAH:								
Bellcreek	---	---	0	---	High	---	Moderate	Low
BdlC2:								
Belmore	---	---	0	---	Low	---	Moderate	Moderate
BdmA:								
Belmore	---	---	0	---	Low	---	Moderate	Moderate
BdmB2:								
Belmore	---	---	0	---	Low	---	Moderate	Moderate
BdsAN:								
Benadum	---	---	0	2-10	High	---	Moderate	Moderate
BdsAU:								
Benadum	---	---	0	2-10	High	---	Moderate	Moderate
BltA:								
Blount	Dense material	30-48	0	---	High	---	High	High
BmlA:								
Blount	Dense material	30-48	0	---	High	---	High	High
Del Rey	---	---	0	---	High	---	High	Moderate
CdgC3:								
Casco	Strongly contrasting textural stratification	10-20	0	---	Low	Low	Moderate	Low
CudA:								
Crosby	Dense material	24-40	0	---	High	---	High	Moderate
DdxA:								
Digby	---	---	0	---	High	---	Moderate	High
Haney	---	---	0	---	High	---	High	Moderate
EdxA:								
Eldean	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	High	Moderate
EdxB2:								
Eldean	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Subsidence		Potential for frost action	Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Initial	Total			Uncoated steel	Concrete
		In	*In*	*In*				
EdxC2:								
Eldean-----------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	High	Moderate
EdxD2:								
Eldean-----------	Strongly contrasting textural stratification	20-40	0	---	Moderate	Low	High	Moderate
EdxE2:								
Eldean-----------	Strongly contrasting textural stratification	20-40	0	---	Moderate	Medium	High	Moderate
FexB2:								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
FexC2:								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
FgoB2:								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
Muncie-----------	Strongly contrasting textural stratification	48-96	0	---	Moderate	---	High	Moderate
FgoC2:								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
Muncie-----------	Strongly contrasting textural stratification	48-96	0	---	Moderate	---	High	Moderate
FgrC3:								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
Muncie-----------	Strongly contrasting textural stratification	48-96	0	---	Moderate	---	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Subsidence: Initial	Subsidence: Total	Potential for frost action	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In	In				
FgrD3:								
Fox	Strongly contrasting textural stratification	20-40	0	---	Moderate	Low	Moderate	Moderate
Muncie	Strongly contrasting textural stratification	48-96	0	---	Moderate	Low	High	Moderate
GlnAH:								
Gessie	---	---	0	---	Moderate	---	Low	Low
Eel	---	---	0	---	Moderate	---	Moderate	Low
GlrB2:								
Glynwood	Dense material	25-48	0	---	High	---	High	Moderate
GlyB3:								
Glynwood	Dense material	20-40	0	---	High	---	High	Moderate
Mississinewa	Dense material	12-20	0	---	Moderate	---	High	Moderate
HtbAN:								
Houghton	---	---	1-4	55-60	High	---	High	Low
HtbAU:								
Houghton	---	---	1-4	55-60	High	---	High	Low
LdfAH:								
Lash	---	---	0	---	Moderate	---	Low	Low
LneAW:								
Lickcreek	---	---	0	---	Moderate	---	Moderate	Moderate
LshC3:								
Losantville	Dense material	12-20	0	---	Moderate	---	Moderate	Low
LshD3:								
Losantville	Dense material	12-20	0	---	Moderate	Low	Moderate	Low
LteE:								
Lybrand	Dense material	40-60	0	---	Moderate	Medium	High	Moderate
Belmore	---	---	0	---	Low	Medium	Moderate	Moderate
LteG:								
Lybrand	Dense material	40-60	0	---	Moderate	Medium	High	Moderate
Belmore	---	---	0	---	Low	Medium	Moderate	Moderate
MecA:								
Martinsville	---	---	0	---	Moderate	---	Moderate	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Subsidence: Initial	Subsidence: Total	Potential for frost action	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In	In				
MecB:								
Martinsville	---	---	0	---	Moderate	---	Moderate	Moderate
MmcB2:								
Miami	Dense material	30-40	0	---	Moderate	---	Moderate	Moderate
MmcC2:								
Miami	Dense material	30-40	0	---	Moderate	---	Moderate	Moderate
MoeB2:								
Miamian	Dense material	30-40	0	---	Moderate	---	Moderate	Moderate
MoeC2:								
Miamian	Dense material	30-40	0	---	Moderate	---	Moderate	Moderate
MorA:								
Milford	---	---	0	---	High	---	Moderate	Low
MphA:								
Milford	---	---	0	---	High	---	High	Low
MprA:								
Milford	---	---	0	---	High	---	High	Low
MryA:								
Millgrove	---	---	0	---	High	---	High	Low
MumC2:								
Morley	Dense material	30-40	0	---	Moderate	---	High	Moderate
MumD2:								
Morley	Dense material	30-40	0	---	Moderate	Low	High	Moderate
MvbC3:								
Morley	Dense material	24-40	0	---	Moderate	---	High	Moderate
Mississinewa	Dense material	12-20	0	---	Moderate	---	High	Moderate
MvbD3:								
Morley	Dense material	24-40	0	---	Moderate	Low	High	Moderate
Mississinewa	Dense material	12-20	0	---	Moderate	Low	High	Moderate
MvxA:								
Mountpleasant	---	---	0	---	Moderate	---	High	Moderate
MvxB2:								
Mountpleasant	---	---	0	---	Moderate	---	High	Moderate
MvxC2:								
Mountpleasant	---	---	0	---	Moderate	---	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Subsidence		Potential for frost action	Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Initial	Total			Uncoated steel	Concrete
		In	*In*	*In*				
MwzAN:								
Muskego----------	---	---	0	35-45	High	---	Moderate	Moderate
MwzAU:								
Muskego----------	---	---	0	35-45	High	---	Moderate	Moderate
ObxA:								
Ockley-----------	Strongly contrasting textural stratification	40-72	0	---	Moderate	---	Moderate	Moderate
ObxB2:								
Ockley-----------	Strongly contrasting textural stratification	40-72	0	---	Moderate	---	Moderate	Moderate
PgaA:								
Pella------------	---	---	0	---	High	---	High	Low
PkkA:								
Pewamo-----------	---	---	0	---	High	---	High	Low
Pmg:								
Pits, gravel.								
Pml:								
Pits, quarry.								
ReyA:								
Rensselaer-------	---	---	0	---	High	---	High	Low
RroAH:								
Ross-------------	---	---	0	---	Moderate	---	Low	Low
Lash-------------	---	---	0	---	Moderate	---	Low	Low
RrwB:								
Rawson-----------	Dense material	30-48	0	---	Moderate	---	High	Moderate
SgmAH:								
Shoals-----------	---	---	0	---	High	---	High	Low
SmsAH:								
Sloan------------	---	---	0	---	High	---	High	Low
SnlA:								
Southwest--------	---	---	0	---	High	---	High	Low
SvsE2:								
Strawn-----------	---	---	0	---	Moderate	Medium	Moderate	Low
Belmore----------	---	---	0	---	Low	Medium	Moderate	Moderate
SvsG:								
Strawn-----------	---	---	0	---	Moderate	Medium	Moderate	Low
Belmore----------	---	---	0	---	Low	Medium	Moderate	Moderate
ThrA:								
Treaty-----------	---	---	0	---	High	---	High	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Subsidence: Initial	Subsidence: Total	Potential for frost action	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*	*In*				
Uam:								
Udorthents-------	---	---	0	---	Moderate	---	High	Moderate
UccA:								
Urban land.								
Crosby-----------	Dense material	24-40	0	---	High	---	High	Moderate
Treaty-----------	---	---	0	---	High	---	High	Low
Ucu:								
Udorthents-------	---	---	0	---	Low	---	Low	High
UdmA:								
Urban land.								
Blount-----------	Dense material	30-48	0	---	High	---	High	High
Pewamo-----------	---	---	0	---	High	---	High	Low
UemB:								
Urban land.								
Fox--------------	Strongly contrasting textural stratification	20-40	0	---	Moderate	---	Moderate	Moderate
UetB:								
Urban land.								
Glynwood---------	Dense material	25-48	0	---	High	---	High	Moderate
UfuA:								
Urban land.								
Millgrove--------	---	---	0	---	High	---	High	Low
UhaB:								
Urban land.								
Wawaka-----------	---	---	0	---	Moderate	---	Moderate	Low
Miami------------	Dense material	30-40	0	---	Moderate	---	Moderate	Moderate
W:								
Water.								
WbgB3:								
Wapahani---------	Dense material	12-24	0	---	Moderate	---	Moderate	Low
WbgC3:								
Wapahani---------	Dense material	12-24	0	---	Moderate	---	Moderate	Low
WdrA:								
Wawaka-----------	---	---	0	---	Moderate	---	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Subsidence		Potential for frost action	Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Initial	Total			Uncoated steel	Concrete
		In	*In*	*In*				
WdrB2:								
Wawaka-----------	---	---	0	---	Moderate	---	Moderate	Low
WdrC2:								
Wawaka-----------	---	---	0	---	Moderate	---	Moderate	Low
WonA:								
Williamstown-----	Dense material	24-40	0	---	Moderate	---	Moderate	Moderate

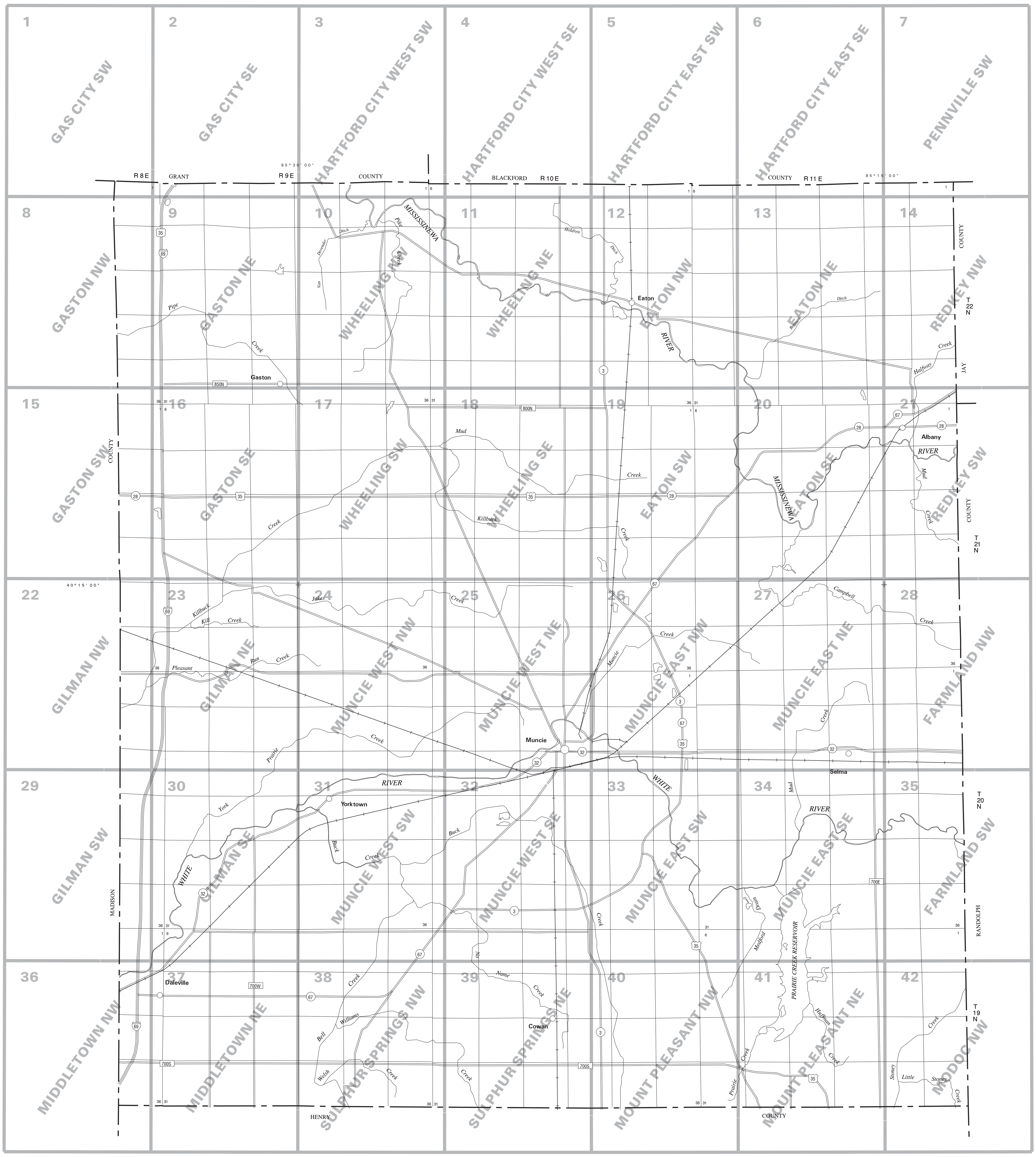
Table 21.--Classification of the Soils

[An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series]

Soil name	Family or higher taxonomic class
Bellcreek	Fine, smectitic, mesic Fluvaquentic Endoaquolls
Belmore	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Benadum	Fine-silty, mixed, active, nonacid, mesic Thapto-Histic Fluvaquents
Blount	Fine, illitic, mesic Aeric Epiaqualfs
*Casco	Clayey over sandy or sandy-skeletal, mixed, superactive, mesic Inceptic Hapludalfs
Crosby	Fine, mixed, active, mesic Aeric Epiaqualfs
Del Rey	Fine, illitic, mesic Aeric Epiaqualfs
Digby	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Eel	Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Eldean	Fine, mixed, superactive, mesic Typic Hapludalfs
Fox	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs
Gessie	Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts
Glynwood	Fine, illitic, mesic Aquic Hapludalfs
Haney	Fine-loamy, mixed, active, mesic Aquic Hapludalfs
Houghton	Euic, mesic Typic Haplosaprists
Lash	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lickcreek	Fine-loamy, mixed, active, mesic Typic Argiudolls
Losantville	Clayey, mixed, active, mesic, shallow Oxyaquic Hapludalfs
Lybrand	Fine, illitic, mesic Typic Hapludalfs
Martinsville	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Miami	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Miamian	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Milford	Fine, mixed, superactive, mesic Typic Endoaquolls
Millgrove	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Mississinewa	Clayey, illitic, mesic, shallow Aquic Hapludalfs
Morley	Fine, illitic, mesic Oxyaquic Hapludalfs
Mountpleasant	Fine, mixed, active, mesic Typic Hapludalfs
Muncie	Fine, mixed, active, mesic Typic Hapludalfs
Muskego	Coprogenous, euic, mesic Limnic Haplosaprists
Ockley	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Pella	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Pewamo	Fine, mixed, active, mesic Typic Argiaquolls
Rawson	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Rensselaer	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Ross	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Shoals	Fine-loamy, mixed, superactive, nonacid, mesic Fluventic Endoaquepts
Sloan	Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls
Southwest	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Strawn	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Treaty	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Udorthents	Loamy, mixed, active, calcareous, mesic Typic Udorthents
Udorthents	Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents
Wapahani	Loamy, mixed, active, mesic, shallow Oxyaquic Hapludalfs
Wawaka	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Williamstown	Fine-loamy, mixed, active, mesic Aquic Hapludalfs

NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at helpdesk@helpdesk.itc.nrcs.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

INDEX TO MAP SHEETS
DELAWARE COUNTY, INDIANA

MILES

KILOMETERS

SCALE = 1:80000

SOIL LEGEND

Map symbols consist of a combination of letters or letters and numbers. The first capital letter is the initial letter of the map unit name. The two lowercase letters that follow separate the map units with names that begin with the same letter. The two lowercase letters do not separate sloping or eroded phases. The second capital letter indicates the slope class. Symbols that do not have a letter indicating slope class are used for miscellaneous areas. A number at the end of a symbol indicates the erosion class. A capital letter as the fifth character indicates an inundation phase or other soil phase.

SYMBOL	NAME
BdhAH	Bellcreek silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration
BdlC2	Belmore loam, 6 to 12 percent slopes, eroded
BdmA	Belmore silt loam, 0 to 1 percent slopes
BdmB2	Belmore silt loam, 1 to 5 percent slopes, eroded
BdsAN	Benadum silt loam, drained, 0 to 1 percent slopes
BdsAU	Benadum silt loam, undrained, 0 to 1 percent slopes
BltA	Blount silt loam, 0 to 2 percent slopes
BmlA	Blount-Del Rey silt loams, 0 to 1 percent slopes
CdgC3	Casco sandy clay loam, 6 to 15 percent slopes, severely eroded
CudA	Crosby silt loam, 0 to 2 percent slopes
DdxA	Digby-Haney silt loams, 0 to 1 percent slopes
EdxA	Eldean silt loam, 0 to 2 percent slopes
EdxB2	Eldean silt loam, 2 to 6 percent slopes, eroded
EdxC2	Eldean silt loam, 6 to 12 percent slopes, eroded
EdxD2	Eldean silt loam, 12 to 18 percent slopes, eroded
EdxE2	Eldean silt loam, 18 to 35 percent slopes, eroded
FexB2	Fox loam, 2 to 6 percent slopes, eroded
FexC2	Fox loam, 6 to 12 percent slopes, eroded
FgoB2	Fox-Muncie complex, 2 to 6 percent slopes, eroded
FgoC2	Fox-Muncie complex, 6 to 12 percent slopes, eroded
FgrC3	Fox-Muncie clay loams, 6 to 12 percent slopes, severely eroded
FgrD3	Fox-Muncie clay loams, 12 to 18 percent slopes, severely eroded
GlnAH	Gessie-Eel silt loams, 0 to 1 percent slopes, frequently flooded, brief duration
GlrB2	Glynwood silt loam, 1 to 4 percent slopes, eroded
GlyB3	Glynwood-Mississinewa clay loams, 2 to 6 percent slopes, severely eroded
HtbAN	Houghton muck, drained, 0 to 1 percent slopes
HtbAU	Houghton muck, undrained, 0 to 1 percent slopes
LdfAH	Lash loam, 0 to 1 percent slopes, frequently flooded, brief duration
LneAW	Lickcreek silt loam, 0 to 3 percent slopes, occasionally flooded, very brief duration
LshC3	Losantville clay loam, 5 to 10 percent slopes, severely eroded
LshD3	Losantville clay loam, 10 to 15 percent slopes, severely eroded
LteE	Lybrand-Belmore loams, 15 to 30 percent slopes
LteG	Lybrand-Belmore loams, 30 to 50 percent slopes
MecA	Martinsville loam, 0 to 2 percent slopes
MecB	Martinsville loam, 2 to 6 percent slopes
MmcB2	Miami loam, 2 to 6 percent slopes, eroded
MmcC2	Miami loam, 6 to 12 percent slopes, eroded
MoeB2	Miamian loam, 1 to 5 percent slopes, eroded
MoeC2	Miamian loam, 5 to 10 percent slopes, eroded
MorA	Milford mucky silty clay, pothole, 0 to 1 percent slopes
MphA	Milford silty clay loam, stratified sandy substratum, 0 to 1 percent slopes
MprA	Milford silty clay loam, till substratum, 0 to 1 percent slopes
MryA	Millgrove silty clay loam, 0 to 1 percent slopes
MumC2	Morley silt loam, 5 to 10 percent slopes, eroded
MumD2	Morley silt loam, 10 to 15 percent slopes, eroded
MvbC3	Morley-Mississinewa clay loams, 5 to 10 percent slopes, severely eroded
MvbD3	Morley-Mississinewa clay loams, 10 to 15 percent slopes, severely eroded
MvxA	Mountpleasant silt loam, 0 to 2 percent slopes
MvxB2	Mountpleasant silt loam, 2 to 6 percent slopes, eroded
MvxC2	Mountpleasant silt loam, 6 to 12 percent slopes, eroded
MwzAN	Muskego muck, drained, 0 to 1 percent slopes
MwzAU	Muskego muck, undrained, 0 to 1 percent slopes
ObxA	Ockley silt loam, 0 to 2 percent slopes
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded
PgaA	Pella silty clay loam, 0 to 1 percent slopes
PkkA	Pewamo silty clay loam, 0 to 1 percent slopes
Pmg	Pits, gravel
Pml	Pits, quarry
ReyA	Rensselaer loam, 0 to 1 percent slopes
RroAH	Ross-Lash loams, 0 to 1 percent slopes, frequently flooded, brief duration
RrwB	Rawson loam, 1 to 5 percent slopes
SgmAH	Shoals silt loam, 0 to 1 percent slopes, frequently flooded, brief duration
SmsAH	Sloan silt loam, 0 to 1 percent slopes, frequently flooded, brief duration
SnlA	Southwest silt loam, 0 to 1 percent slopes
SvsE2	Strawn-Belmore loams, 15 to 30 percent slopes, eroded
SvsG	Strawn-Belmore loams, 30 to 50 percent slopes
ThrA	Treaty silty clay loam, 0 to 1 percent slopes
Uam	Udorthents, loamy
UccA	Urban land-Crosby-Treaty complex, 0 to 2 percent slopes
Ucu	Udorthents, loamy-skeletal
UdmA	Urban land-Blount-Pewamo complex, 0 to 2 percent slopes
UemB	Urban land-Fox complex, 1 to 6 percent slopes
UetB	Urban land-Glynwood complex, 2 to 6 percent slopes
UfuA	Urban land-Millgrove complex, 0 to 1 percent slopes
UhaB	Urban land-Wawaka-Miami complex, 1 to 6 percent slopes
W	Water
WbgB3	Wapahani clay loam, 1 to 5 percent slopes, severely eroded
WbgC3	Wapahani clay loam, 5 to 10 percent slopes, severely eroded
WdrA	Wawaka silt loam, 0 to 2 percent slopes
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded
WdrC2	Wawaka silt loam, 6 to 12 percent slopes, eroded
WonA	Williamstown silt loam, 0 to 2 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- County or parish
- Minor civil division
- Field sheet matchline & neatline

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

ROAD EMBLEM & DESIGNATIONS

- Interstate: 173, 79 345
- Federal: 287, 410 224
- State: 52, 52 347

LEVEES

- Single side slope (showing actual feature location)

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Unclassified, single line
- Drainage end

SMALL LAKES, PONDS AND RESERVOIRS

- Perennial water

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS: EdxA MecA

LANDFORM FEATURES

ESCARPMENTS

- Other than bedrock

SHORT STEEP SLOPE

EXCAVATIONS

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS SURFACE FEATURES

- Sandy spot
- Severely eroded spot
- Wet spot

Definitions of Special Symbols

Name	Description	Label
Blowout	A small saucer, cup, or trough-shaped hollow or depression formed by wind erosion, on a preexisting sand deposit. Typically 0.2 acre to 2.0 acres.	BLO
Borrow pit	An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically 0.2 acre to 2.0 acres.	BPI
Clay spot	A spot where the surface layer is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser. Typically 0.2 acre to 2.0 acres.	CLA
Depression, closed	A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and is without a natural outlet for surface drainage. Typically 0.2 acre to 2.0 acres.	DEP
Escarpment, bedrock	A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.	ESB
Escarpment, nonbedrock	A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.	ESO
Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 0.2 acre to 2.0 acres.	GPI
Gravelly spot	A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area with less than 15 percent rock fragments. Typically 0.2 acre to 2.0 acres.	GRA
Gully	A small channel with steep sides cut by running water through which water ordinarily runs only after a rain or after melting of ice or snow. It generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage.	GUL
Iron accumulation	An accumulation of iron in the form of nodules, concretions, or soft masses on the surface or near the surface of soils. Typically 0.2 acre to 2.0 acres.	FES
Landfill	An area of accumulated waste products of human habitation, either above or below natural ground level. Typically 0.2 acre to 2.0 acres.	LDF
Lava flow	A solidified body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure. Commonly lobate in shape. Typically 0.2 acre to 2.0 acres.	LAV
Levee	An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands. Levees built according to COE standards.	LVS

Name	Description	Label
Marsh or swamp	A water-saturated, very poorly drained area, intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marsh areas, and trees or shrubs are the dominant vegetation in swamps. Typically 0.2 acre to 2.0 acres.	MAR
Mine or quarry	An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically 0.2 acre to 2.0 acres.	MPI
Miscellaneous water	A small, constructed water area that is used for industrial, sanitary, or mining applications and contains water most of the year. Typically 0.2 acre to 2.0 acres.	MIS
Muck spot	An area that occurs within an area of poorly drained or very poorly drained soil and that has a histic epipedon or an organic surface layer. The symbol is used only in map units consisting of mineral soil. Typically 0.2 acre to 2.0 acres.	MUC
Oil brine damaged land	An area of soil that has been severely damaged by the accumulation of oil brine, with or without liquid oily wastes. The area is typically barren but may have a vegetative cover of salt-tolerant plants. Typically 0.2 acre to 2.0 acres.	OBR
Perennial water	A small, natural or constructed lake, pond, or pit that contains water most of the year. Typically 0.2 acre to 2.0 acres.	WAT
Rock outcrop	An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit. Typically 0.2 acre to 2.0 acres.	ROC
Saline spot	An area where the surface layer has an electrical conductivity of 8 mmhos/cm-1 more than the surface layer of the named soils in the surrounding map unit, in which electrical conductivity is 2 mmhos/cm-l or less. Typically 0.2 acre to 2.0 acres.	SAL
Sandy spot	A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer. Typically 0.2 acre to 2.0 acres.	SAN
Severely eroded spot	An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name. Typically 0.2 acre to 2.0 acres	ERO
Short, steep slope	A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.	SLP
Sinkhole	A closed depression formed either by solution of the surficial rock or by collapse of underlying caves. Typically 0.2 acre to 2.0 acres.	SNK
Slide or slip	A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically 0.2 acre to 2.0 acres.	SLI

Name	Description	Label
Sodic spot	An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit, which have a sodium adsorption ratio of 5 or less. Typically 0.2 acre to 2.0 acres.	SOD
Spoil area	A pile of earthy materials, either smoothed or uneven, resulting from human activity. Typically 0.2 acre to 2.0 acres.	SPO
Stony spot	A spot where 0.01 to 0.1 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically 0.2 acre to 2.0 acres.	STN
Unclassified water	A small, natural or manmade lake, pond, or pit that contains water, of an unspecified nature, most of the year. Typically 0.2 acre to 2.0 acres.	UWT
Very stony spot	A spot where 0.1 to 3.0 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surface cover of the surrounding soil is less than 0.01 percent stones. Typically 0.2 acre to 2.0 acres.	STV
Wet depression	A shallow, concave area within an area of poorly drained or very poorly drained soils in which water is ponded for intermittent periods. The concave area is saturated for appreciably longer periods of time than the surrounding soil. Typically 0.2 acre to 2.0 acres.	WDP
Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically 0.2 acre to 2.0 acres.	WET

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GAS CITY SW QUADRANGLE
SHEET NUMBER 1 OF 42

85° 37′30″ 85° 33′45″
40° 26′15″ 40° 26′15″

40° 22′30″ 40° 22′30″
85° 37′30″ 85° 33′45″

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 FAIRMOUNT NE (MADISON AND GRANT COUNTIES)
2 GAS CITY NW (MADISON AND GRANT COUNTIES)
3 GAS CITY NE (GRANT COUNTY)
4 FAIRMOUNT SE (MADISON AND GRANT COUNTIES)
5 GAS CITY SE (SHEET 2)
6 ALEXANDRIA NE (MADISON COUNTY)
7 GASTON NW (SHEET 8)
8 GASTON NE (SHEET 9)

INDEX TO ADJOINING 3.75 MAPS

GAS CITY SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GAS CITY SE QUADRANGLE
SHEET NUMBER 2 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 GAS CITY NW (MADISON AND GRANT COUNTIES)
2 GAS CITY NE (GRANT COUNTY)
3 HARTFORD CITY WEST NW (GRANT COUNTY)
4 GAS CITY SW (SHEET 1)
5 HARTFORD CITY WEST SW (SHEET 3)
6 GASTON NW (SHEET 8)
7 GASTON NE (SHEET 9)
8 WHEELING NW (SHEET 10)

INDEX TO ADJOINING 3.75 MAPS

GAS CITY SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 GAS CITY NE (GRANT COUNTY)
2 HARTFORD CITY WEST NW (GRANT COUNTY)
3 HARTFORD CITY WEST NE (GRANT COUNTY)
4 GAS CITY SE (SHEET 2)
5 HARTFORD CITY WEST SE (SHEET 4)
6 GASTON NE (SHEET 9)
7 WHEELING NW (SHEET 10)
8 WHEELING NE (SHEET 11)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
HARTFORD CITY WEST SE QUADRANGLE
SHEET NUMBER 4 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 HARTFORD CITY WEST NW (BLACKFORD AND GRANT COUNTIES)
2 HARTFORD CITY WEST NE (BLACKFORD COUNTY)
3 HARTFORD CITY EAST NW (BLACKFORD COUNTY)
4 HARTFORD CITY WEST SW (SHEET 3)
5 HARTFORD CITY EAST SW (SHEET 5)
6 WHEELING NW (SHEET 10)
7 WHEELING NE (SHEET 11)
8 EATON NW (SHEET 12)

INDEX TO ADJOINING 3.75 MAPS

HARTFORD CITY WEST SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

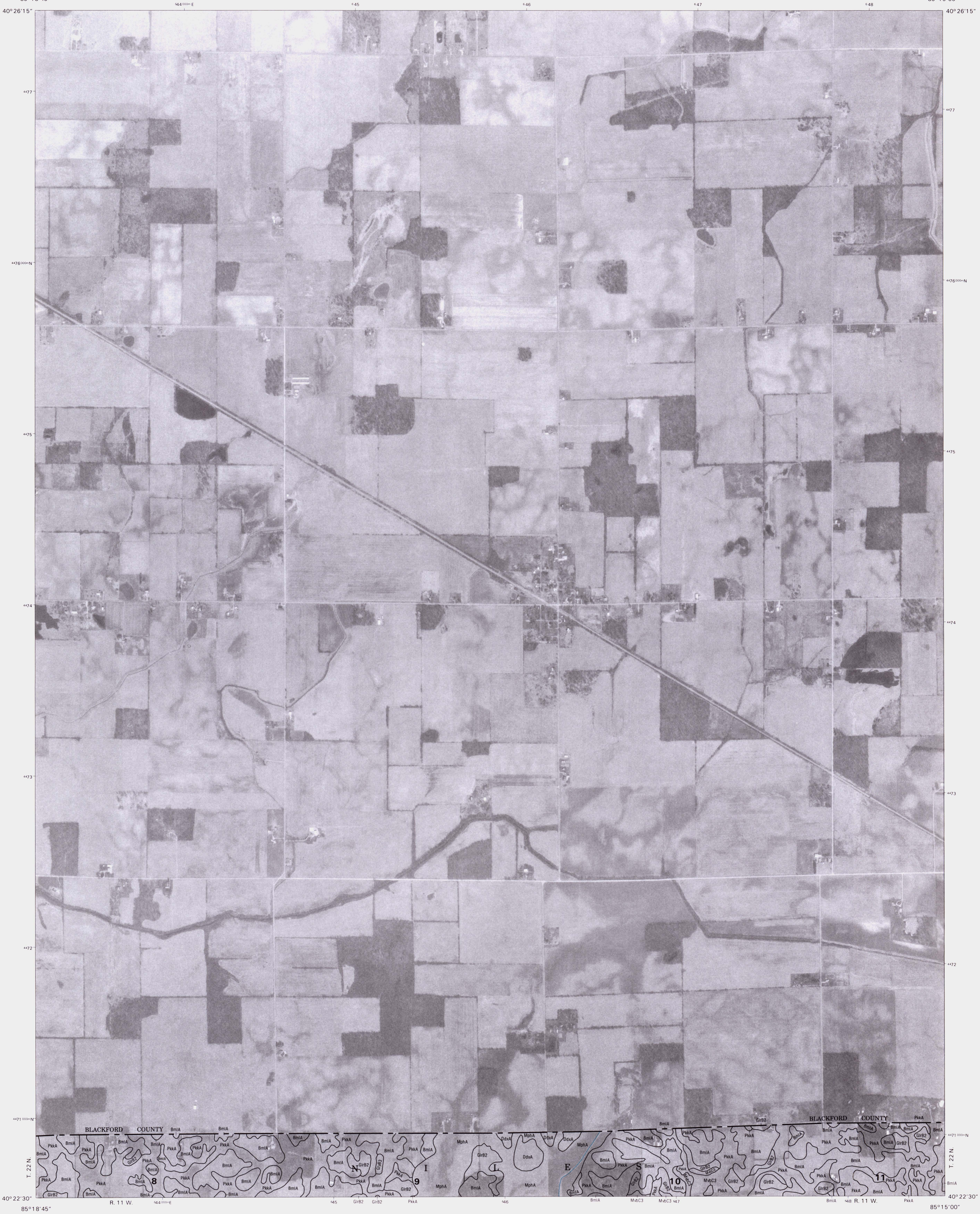
1 HARTFORD CITY WEST NE (BLACKFORD COUNTY)
2 HARTFORD CITY EAST NW (BLACKFORD COUNTY)
3 HARTFORD CITY EAST NE (BLACKFORD COUNTY)
4 HARTFORD CITY WEST SE (SHEET 4)
5 HARTFORD CITY EAST SE (SHEET 6)
6 WHEELING NE (SHEET 11)
7 EATON NW (SHEET 12)
8 EATON NE (SHEET 13)

INDEX TO ADJOINING 3.75 MAPS

HARTFORD CITY EAST SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
HARTFORD CITY EAST SE QUADRANGLE
SHEET NUMBER 6 OF 42



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 HARTFORD CITY EAST NW (BLACKFORD COUNTY)
2 HARTFORD CITY EAST NE (BLACKFORD COUNTY)
3 PENNVILLE NW (BLACKFORD AND JAY COUNTIES)
4 HARTFORD CITY EAST SW (SHEET 5)
5 PENNVILLE SW (SHEET 7)
6 EATON NW (SHEET 12)
7 EATON NE (SHEET 13)
8 REDKEY NW (SHEET 14)

INDEX TO ADJOINING 3.75 MAPS

HARTFORD CITY EAST SE, INDIANA

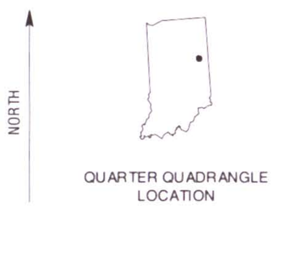
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
PENNVILLE SW QUADRANGLE
SHEET NUMBER 7 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



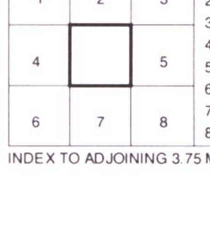
QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS



1 HARTFORD CITY EAST NE (BLACKFORD COUNTY)
2 PENNVILLE NW (BLACKFORD AND JAY COUNTIES)
3 PENNVILLE NE (BLACKFORD AND JAY COUNTIES)
4 HARTFORD CITY EAST SE (SHEET 6)
5 PENNVILLE SE (BLACKFORD AND JAY COUNTIES)
6 EATON NE (SHEET 13)
7 REDKEY NW (SHEET 14)
8 REDKEY NE (JAY COUNTY)

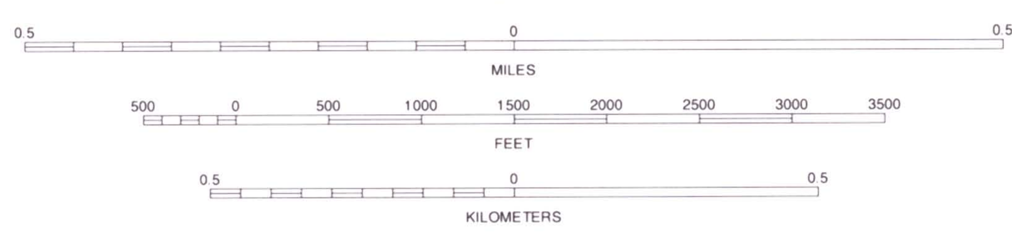
INDEX TO ADJOINING 3.75 MAPS

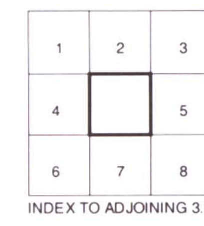
PENNVILLE SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 7 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000





1 FAIRMOUNT SE (MADISON AND GRANT COUNTIES)
2 GAS CITY SW (SHEET 1)
3 GAS CITY SE (SHEET 2)
4 ALEXANDRIA NE (MADISON COUNTY)
5 GASTON NE (SHEET 9)
6 ALEXANDRIA SE (MADISON COUNTY)
7 GASTON SW (SHEET 15)
8 GASTON SE (SHEET 16)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GASTON NE QUADRANGLE
SHEET NUMBER 9 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000

MILES: 0.5 — 0 — 0.5
FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 GAS CITY SW (SHEET 1)
2 GAS CITY SE (SHEET 2)
3 HARTFORD CITY WEST SW (SHEET 3)
4 GASTON NW (SHEET 8)
5 WHEELING NW (SHEET 10)
6 GASTON SW (SHEET 15)
7 GASTON SE (SHEET 16)
8 WHEELING SW (SHEET 17)

INDEX TO ADJOINING 3.75 MAPS

GASTON NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 9 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
WHEELING NW QUADRANGLE
SHEET NUMBER 10 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 GAS CITY SE (SHEET 2)
2 HARTFORD CITY WEST SW (SHEET 3)
3 HARTFORD CITY WEST SE (SHEET 4)
4 GASTON NE (SHEET 9)
5 WHEELING NE (SHEET 11)
6 GASTON SE (SHEET 16)
7 WHEELING SW (SHEET 17)
8 WHEELING SE (SHEET 18)

INDEX TO ADJOINING 3.75 MAPS

WHEELING NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 10 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 HARTFORD CITY WEST SW (SHEET 3)
2 HARTFORD CITY WEST SE (SHEET 4)
3 HARTFORD CITY EAST SW (SHEET 5)
4 WHEELING NW (SHEET 10)
5 EATON NW (SHEET 12)
6 WHEELING SW (SHEET 17)
7 WHEELING SE (SHEET 18)
8 EATON SW (SHEET 19)

INDEX TO ADJOINING 3.75 MAPS

WHEELING NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 42

85°22'30"
40°22'30"

85°18'45"
40°22'30"

40°18'45"
85°22'30"

40°18'45"
85°18'45"

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 HARTFORD CITY WEST SE (SHEET 4)
2 HARTFORD CITY EAST SW (SHEET 5)
3 HARTFORD CITY EAST SE (SHEET 6)
4 WHEELING NE (SHEET 11)
5 EATON NE (SHEET 13)
6 WHEELING SE (SHEET 18)
7 EATON SW (SHEET 19)
8 EATON SE (SHEET 20)

INDEX TO ADJOINING 3.75 MAPS

EATON NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 12 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

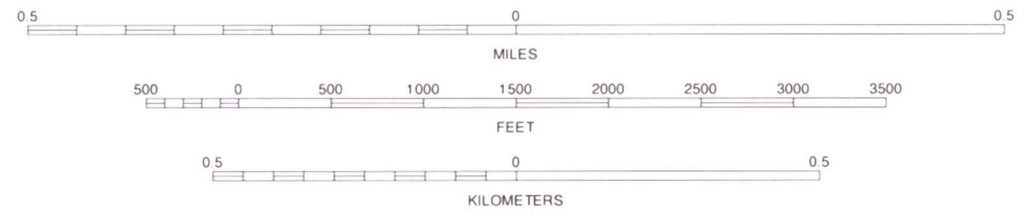
DELAWARE COUNTY, INDIANA
EATON NE QUADRANGLE
SHEET NUMBER 13 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 HARTFORD CITY EAST SW (SHEET 5)
2 HARTFORD CITY EAST SE (SHEET 6)
3 PENNVILLE SW (SHEET 7)
4 EATON NW (SHEET 12)
5 REDKEY NW (SHEET 14)
6 EATON SW (SHEET 19)
7 EATON SE (SHEET 20)
8 REDKEY SW (SHEET 21)

INDEX TO ADJOINING 3.75 MAPS

EATON NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
REDKEY NW QUADRANGLE
SHEET NUMBER 14 OF 42

85°15'00" 40°22'30" R. 11 E. | R. 12 E. 85°11'15" 40°22'30"

40°18'45" 85°15'00" R. 11 E. | R. 12 E. 40°18'45" 85°11'15"

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 HARTFORD CITY EAST SE (SHEET 6)
2 PENNVILLE SW (SHEET 7)
3 PENNVILLE SE (JAY COUNTY)
4 EATON NE (SHEET 13)
5 REDKEY NE (JAY COUNTY)
6 EATON SE (SHEET 20)
7 REDKEY SW (SHEET 21)
8 REDKEY SE (JAY AND RANDOLPH COUNTIES)

INDEX TO ADJOINING 3.75 MAPS

REDKEY NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

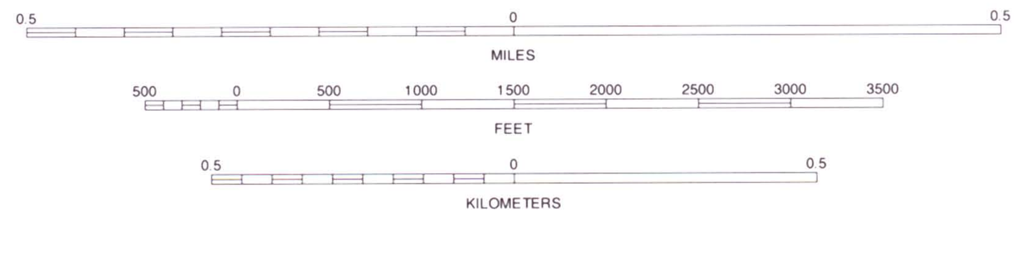
DELAWARE COUNTY, INDIANA
GASTON SW QUADRANGLE
SHEET NUMBER 15 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 ALEXANDRIA NE (MADISON COUNTY)
2 GASTON NW (SHEET 8)
3 GASTON NE (SHEET 9)
4 ALEXANDRIA SE (MADISON COUNTY)
5 GASTON SE (SHEET 16)
6 ANDERSON NORTH NE (MADISON COUNTY)
7 GILMAN NW (SHEET 22)
8 GILMAN NE (SHEET 23)

INDEX TO ADJOINING 3.75 MAPS

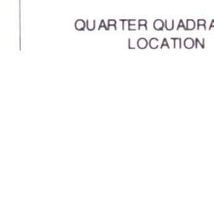
GASTON SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GASTON SE QUADRANGLE
SHEET NUMBER 16 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

1	2	3
4		5
6	7	8

1 GASTON NW (SHEET 8)
2 GASTON NE (SHEET 9)
3 WHEELING NW (SHEET 10)
4 GASTON SW (SHEET 15)
5 WHEELING SW (SHEET 17)
6 GILMAN NW (SHEET 22)
7 GILMAN NE (SHEET 23)
8 MUNCIE WEST NW (SHEET 24)

INDEX TO ADJOINING 3.75 MAPS

GASTON SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

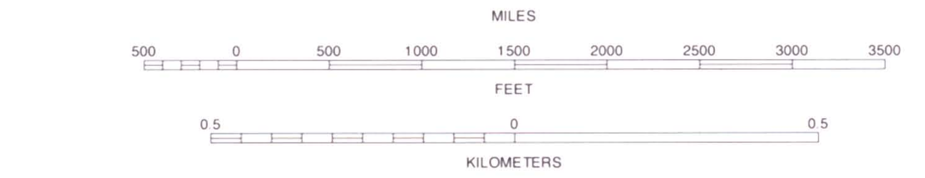
DELAWARE COUNTY, INDIANA
WHEELING SW QUADRANGLE
SHEET NUMBER 17 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital cata are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 GASTON NE (SHEET 9)
2 WHEELING NW (SHEET 10)
3 WHEELING NE (SHEET 11)
4 GASTON SE (SHEET 16)
5 WHEELING SE (SHEET 18)
6 GILMAN NE (SHEET 23)
7 MUNCIE WEST NW (SHEET 24)
8 MUNCIE WEST NE (SHEET 25)

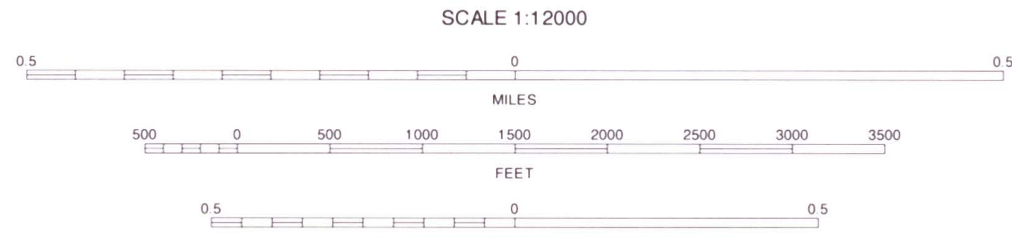
INDEX TO ADJOINING 3.75 MAPS

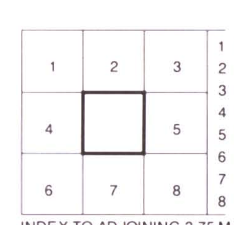
WHEELING SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.





1 WHEELING NW (SHEET 10)
2 WHEELING NE (SHEET 11)
3 EATON NW (SHEET 12)
4 WHEELING SW (SHEET 17)
5 EATON SW (SHEET 19)
6 MUNCIE WEST NW (SHEET 24)
7 MUNCIE WEST NE (SHEET 25)
8 MUNCIE EAST NW (SHEET 26)

INDEX TO ADJOINING 3.75 MAPS

WHEELING SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 42

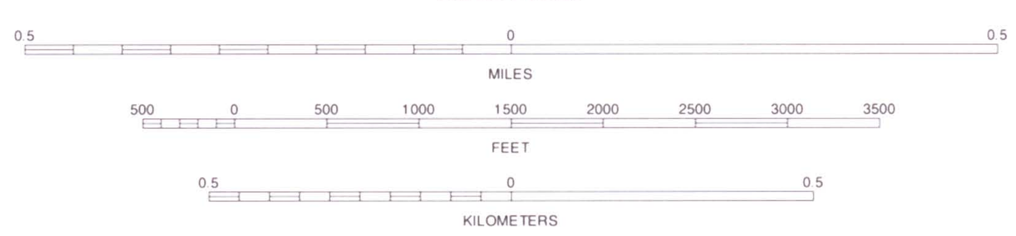
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
EATON SW QUADRANGLE
SHEET NUMBER 19 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

1 WHEELING NE (SHEET 11)
2 EATON NW (SHEET 12)
3 EATON NE (SHEET 13)
4 WHEELING SE (SHEET 18)
5 EATON SE (SHEET 20)
6 MUNCIE WEST NE (SHEET 25)
7 MUNCIE EAST NW (SHEET 26)
8 MUNCIE EAST NE (SHEET 27)

INDEX TO ADJOINING 3.75 MAPS

EATON SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
EATON SE QUADRANGLE
SHEET NUMBER 20 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 EATON NW (SHEET 12)
2 EATON NE (SHEET 13)
3 REDKEY NW (SHEET 14)
4 EATON SW (SHEET 19)
5 REDKEY SW (SHEET 21)
6 MUNCIE EAST NW (SHEET 26)
7 MUNCIE EAST NE (SHEET 27)
8 FARMLAND NW (SHEET 28)

INDEX TO ADJOINING 3.75 MAPS

EATON SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987 - 1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

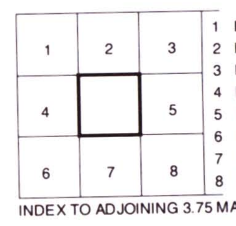
QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS



1 EATON NE (SHEET 13)
2 REDKEY NW (SHEET 14)
3 REDKEY NE (JAY COUNTY)
4 EATON SE (SHEET 20)
5 REDKEY SE (JAY AND RANDOLPH COUNTIES)
6 MUNCIE EAST NE (SHEET 27)
7 FARMLAND NW (SHEET 28)
8 FARMLAND NE (RANDOLPH COUNTY)

INDEX TO ADJOINING 3.75 MAPS

REDKEY SW, INDIANA

3.75 MINUTE SERIES

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GILMAN NW QUADRANGLE
SHEET NUMBER 22 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 ALEXANDRIA SE (MADISON COUNTY)
2 GASTON SW (SHEET 15)
3 GASTON SE (SHEET 16)
4 ANDERSON NORTH NE (MADISON COUNTY)
5 GILMAN NE (SHEET 23)
6 ANDERSON NORTH SE (MADISON COUNTY)
7 GILMAN SW (SHEET 29)
8 GILMAN SE (SHEET 30)

INDEX TO ADJOINING 3.75 MAPS

GILMAN NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GILMAN NE QUADRANGLE
SHEET NUMBER 23 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

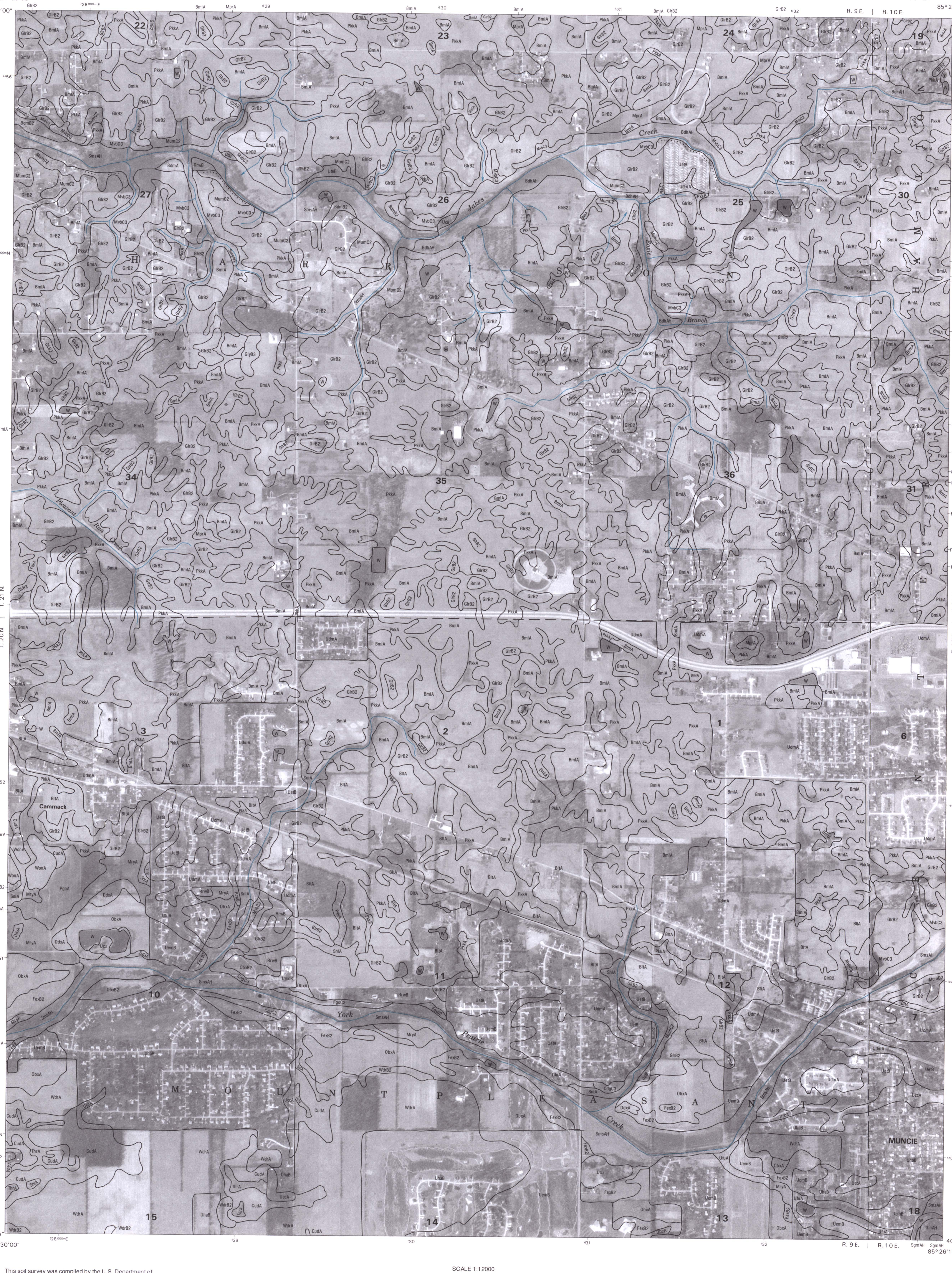
0.5 0 0.5 KILOMETERS

1 GASTON SW (SHEET 15)
2 GASTON SE (SHEET 16)
3 WHEELING SW (SHEET 17)
4 GILMAN NW (SHEET 22)
5 MUNCIE WEST NW (SHEET 24)
6 GILMAN SW (SHEET 29)
7 GILMAN SE (SHEET 30)
8 MUNCIE WEST SW (SHEET 31)

INDEX TO ADJOINING 3.75 MAPS

GILMAN NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1 GASTON SE (SHEET 16)
2 WHEELING SW (SHEET 17)
3 WHEELING SE (SHEET 18)
4 GILMAN NE (SHEET 23)
5 MUNCIE WEST NE (SHEET 25)
6 GILMAN SE (SHEET 30)
7 MUNCIE WEST SW (SHEET 31)
8 MUNCIE WEST SE (SHEET 32)

INDEX TO ADJOINING 3.75 MAPS

MUNCIE WEST NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
MUNCIE WEST NE QUADRANGLE
SHEET NUMBER 25 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

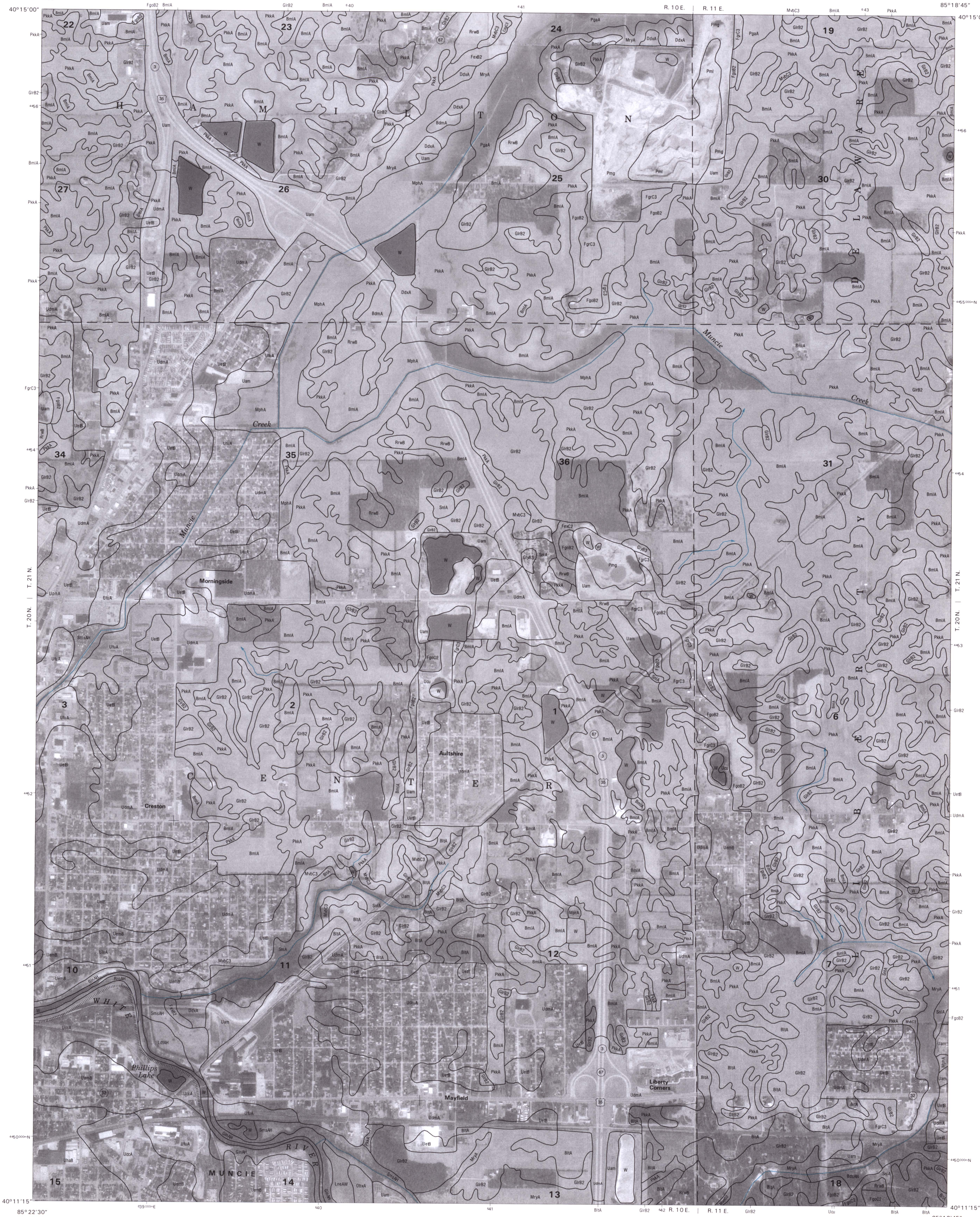
1	2	3
4		5
6	7	8

1 WHEELING SW (SHEET 17)
2 WHEELING SE (SHEET 18)
3 EATON SW (SHEET 19)
4 MUNCIE WEST NW (SHEET 24)
5 MUNCIE EAST NW (SHEET 26)
6 MUNCIE WEST SW (SHEET 31)
7 MUNCIE WEST SE (SHEET 32)
8 MUNCIE EAST SW (SHEET 33)

INDEX TO ADJOINING 3.75 MAPS

MUNCIE WEST NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 42

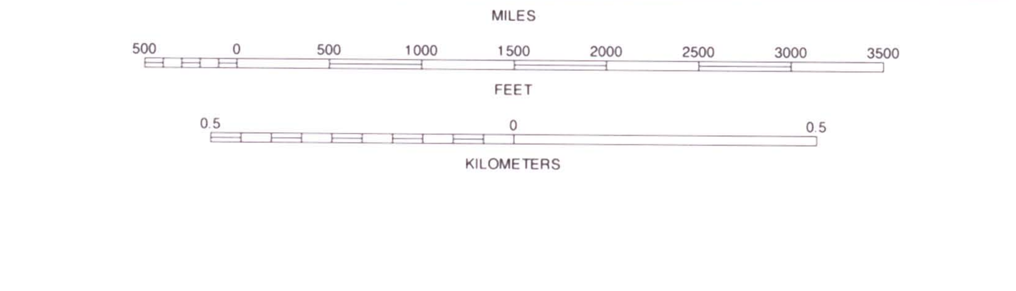
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

1 WHEELING SE (SHEET 18)
2 EATON SW (SHEET 19)
3 EATON SE (SHEET 20)
4 MUNCIE WEST NE (SHEET 25)
5 MUNCIE EAST NE (SHEET 27)
6 MUNCIE WEST SE (SHEET 32)
7 MUNCIE EAST SW (SHEET 33)
8 MUNCIE EAST SE (SHEET 34)

INDEX TO ADJOINING 3.75 MAPS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

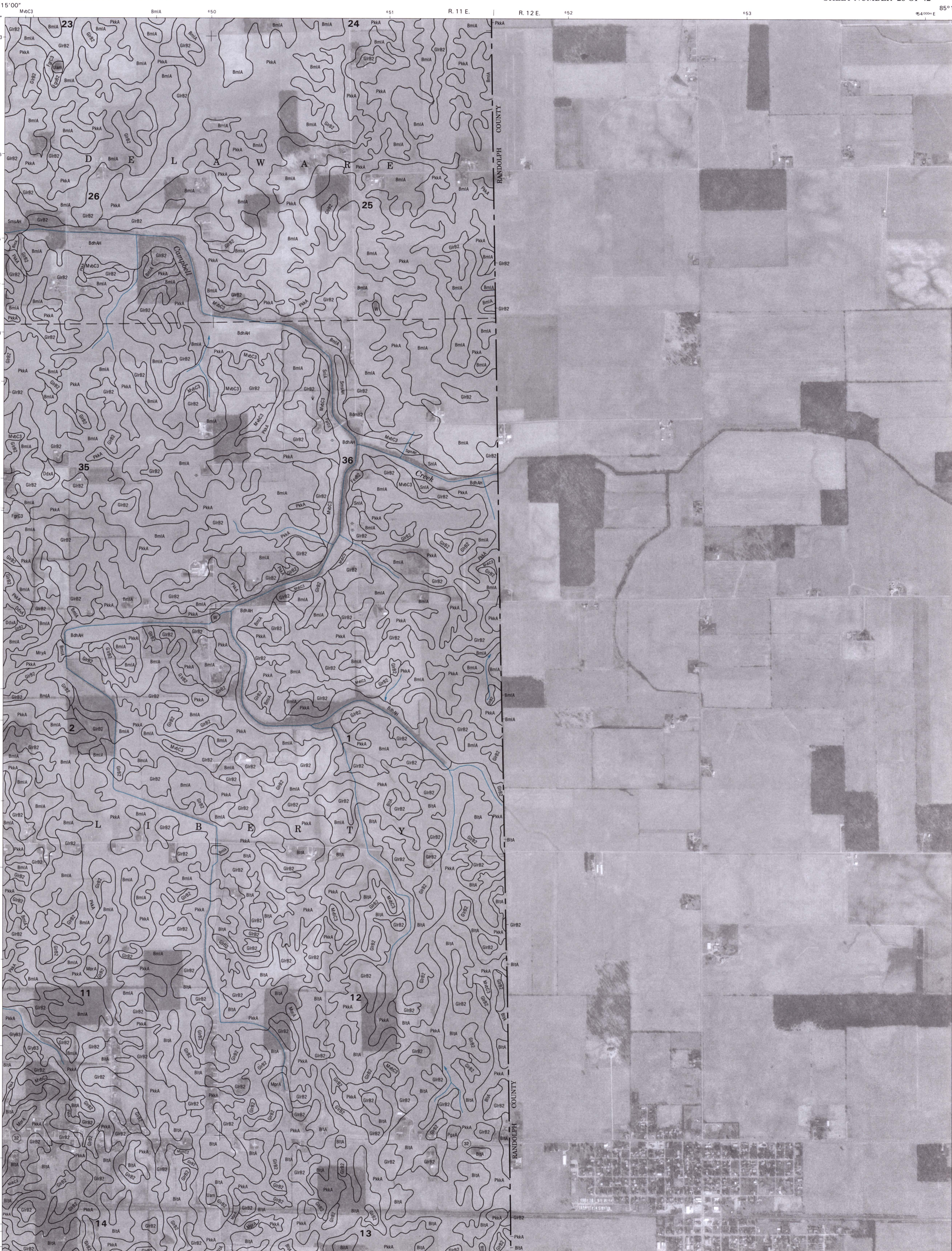
KILOMETERS

1 EATON SW (SHEET 19)
2 EATON SE (SHEET 20)
3 REDKEY SW (SHEET 21)
4 MUNCIE EAST NW (SHEET 26)
5 FARMLAND NW (SHEET 28)
6 MUNCIE EAST SW (SHEET 33)
7 MUNCIE EAST SE (SHEET 34)
8 FARMLAND SW (SHEET 35)

INDEX TO ADJOINING 3.75 MAPS

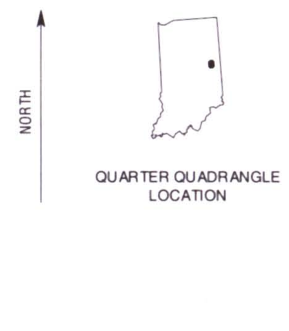
MUNCIE EAST NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1 EATON SE (SHEET 20)
2 REDKEY SW (SHEET 21)
3 REDKEY SE (RANDOLPH COUNTY)
4 MUNCIE EAST NE (SHEEET 27)
5 FARMLAND NE (RANDOLPH COUNTY)
6 MUNCIE EAST SE (SHEET 34)
7 FARMLAND SW (SHEET 35)
8 FARMLAND SE (RANDOLPH COUNTY)

INDEX TO ADJOINING 3.75 MAPS

FARMLAND NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 ANDERSON NORTH NE (MADISON COUNTY)
2 GILMAN NW (SHEET 22)
3 GILMAN NE (SHEET 23)
4 ANDERSON NORTH SE (MADISON COUNTY)
5 GILMAN SE (SHEET 30)
6 ANDERSON SOUTH NE (MADISON COUNTY)
7 MIDDLETOWN NW (SHEET 36)
8 MIDDLETOWN NE (SHEET 37)

INDEX TO ADJOINING 3.75 MAPS

GILMAN SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 29 OF 42

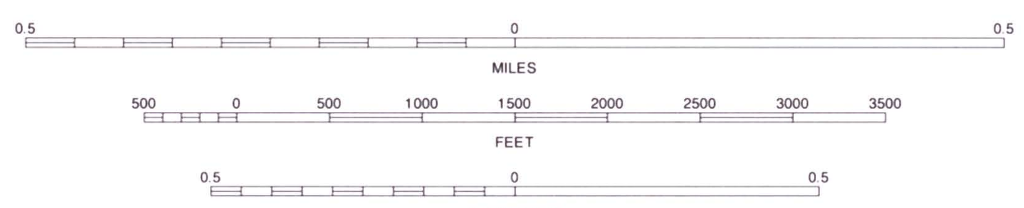
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
GILMAN SE QUADRANGLE
SHEET NUMBER 30 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

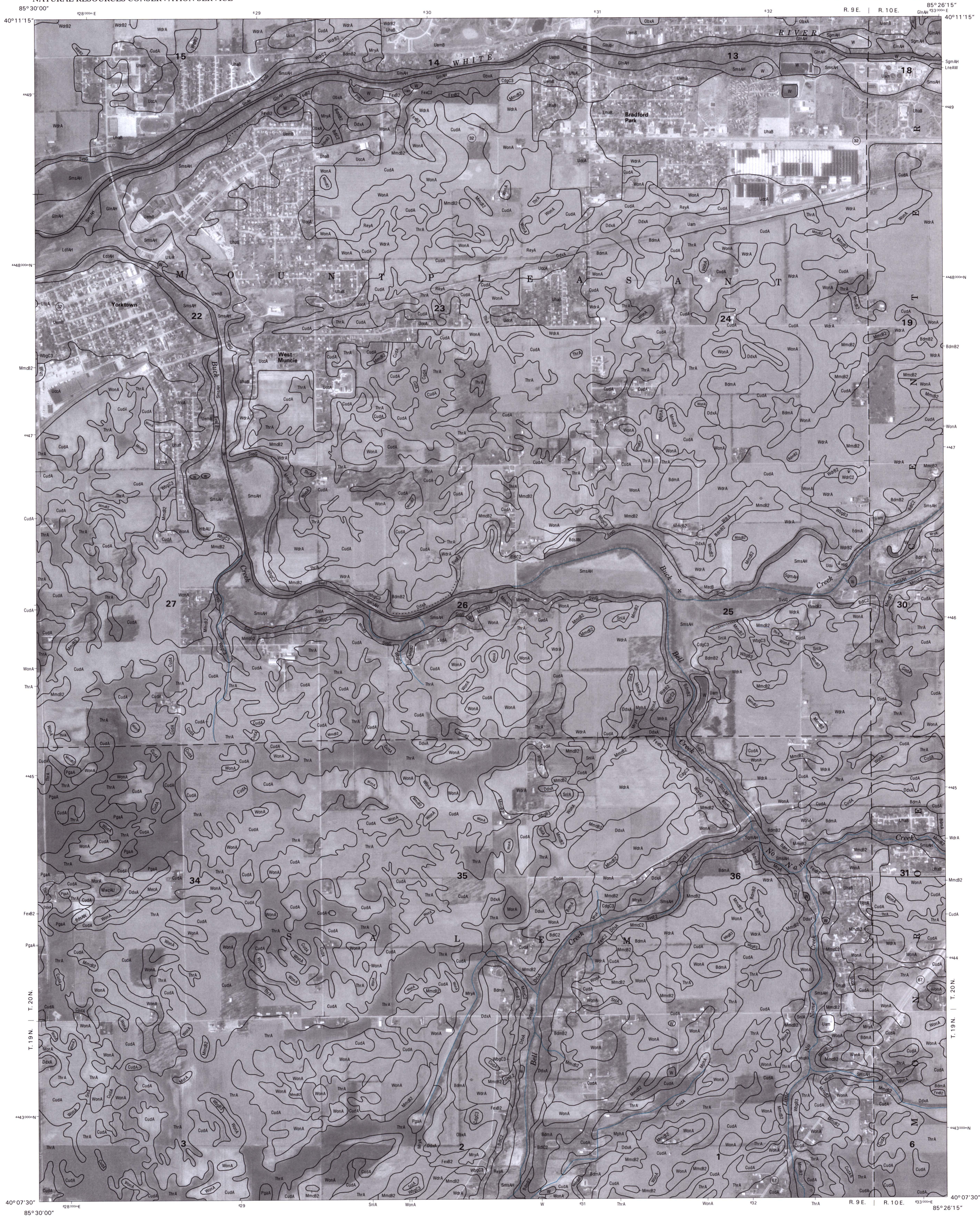
1 GILMAN NW (SHEET 22)
2 GILMAN NE (SHEET 23)
3 MUNCIE WEST NW (SHEET 24)
4 GILMAN SW (SHEET 29)
5 MUNCIE WEST SW (SHEET 31)
6 MIDDLETOWN NW (SHEET 36)
7 MIDDLETOWN NE (SHEET 37)
8 SULPHUR SPRINGS NW (SHEET 38)

INDEX TO ADJOINING 3.75 MAPS

GILMAN SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
MUNCIE WEST SW QUADRANGLE
SHEET NUMBER 31 OF 42



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 GILMAN NE (SHEET 24)
2 MUNCIE WEST NW (SHEET 25)
3 MUNCIE WEST NE (SHEET 26)
4 GILMAN SE (SHEET 30)
5 MUNCIE WEST SE (SHEET 32)
6 MIDDLETOWN NE (SHEET 37)
7 SULPHUR SPRINGS NW (SHEET 38)
8 SULPHUR SPRINGS NE (SHEET 39)

INDEX TO ADJOINING 3.75 MAPS

MUNCIE WEST SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

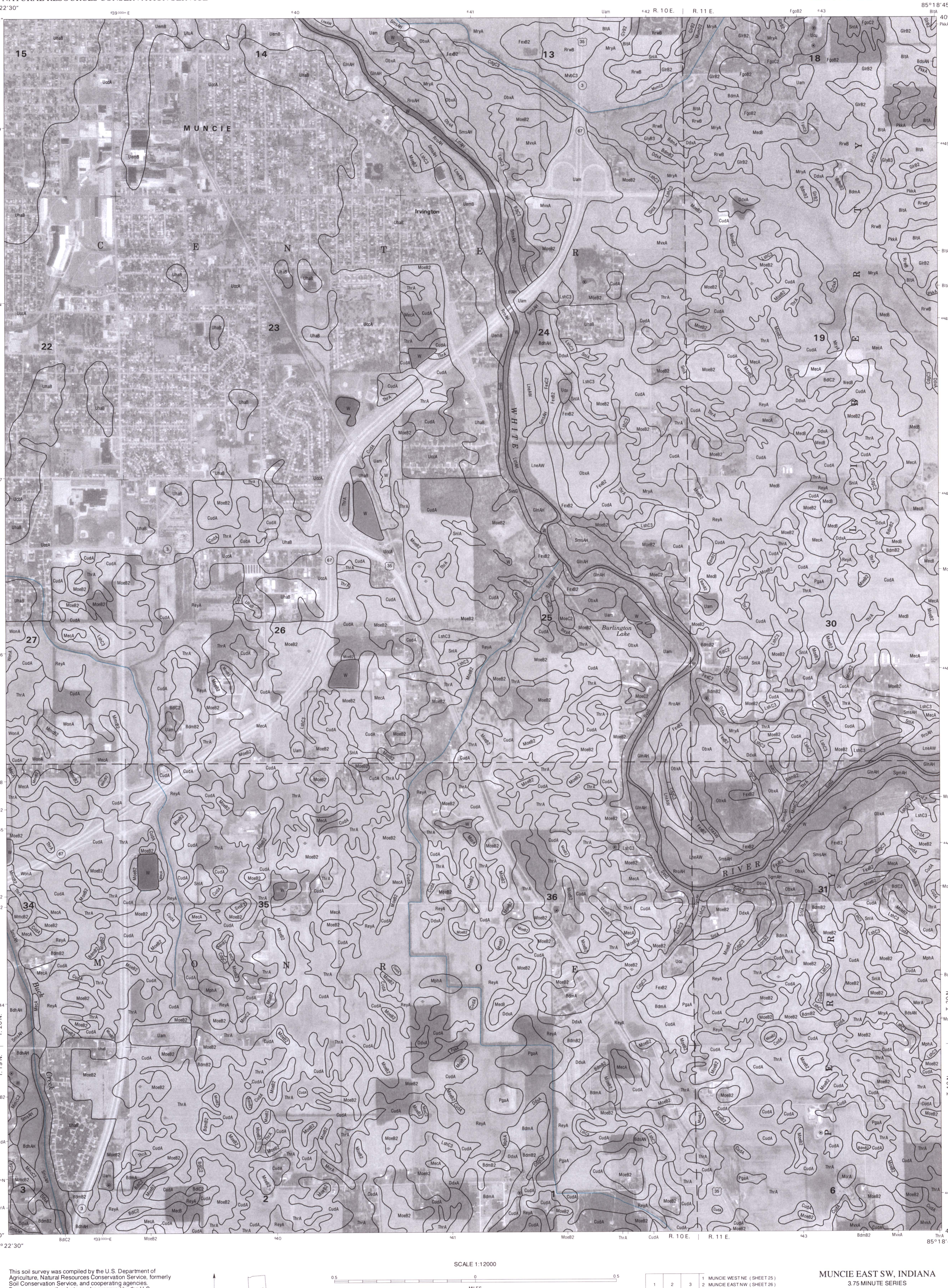
FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

1 MUNCIE WEST NW (SHEET 24)
2 MUNCIE WEST NE (SHEET 25)
3 MUNCIE EAST NW (SHEET 26)
4 MUNCIE WEST SW (SHEET 31)
5 MUNCIE EAST SW (SHEET 33)
6 SULPHUR SPRINGS NW (SHEET 38)
7 SULPHUR SPRINGS NE (SHEET 39)
8 MOUNT PLEASANT NW (SHEET 40)

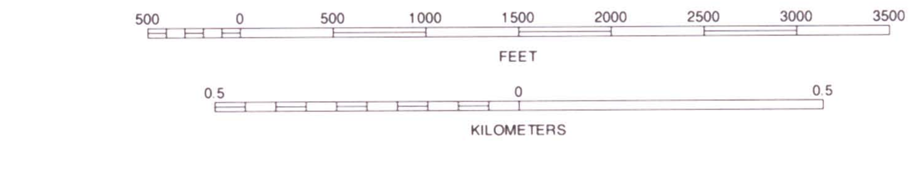
MUNCIE WEST SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 42



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MUNCIE WEST NE (SHEET 25)
2 MUNCIE EAST NW (SHEET 26)
3 MUNCIE EAST NE (SHEET 27)
4 MUNCIE WEST SE (SHEET 32)
5 MUNCIE EAST SE (SHEET 34)
6 SULPHUR SPRINGS NE (SHEET 39)
7 MOUNT PLEASANT NW (SHEET 40)
8 MOUNT PLEASANT NE (SHEET 41)

INDEX TO ADJOINING 3.75 MAPS

MUNCIE EAST SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 33 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
MUNCIE EAST SE QUADRANGLE
SHEET NUMBER 34 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 MUNCIE EAST NW (SHEET 26)
2 MUNCIE EAST NE (SHEET 27)
3 FARMLAND NW (SHEET 28)
4 MUNCIE EAST SW (SHEET 33)
5 FARMLAND SW (SHEET 35)
6 MOUNT PLEASANT NW (SHEET 40)
7 MOUNT PLEASANT NE (SHEET 41)
8 MODOC NW (SHEET 42)

INDEX TO ADJOINING 3.75 MAPS

MUNCIE EAST SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 34 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
FARMLAND SW QUADRANGLE
SHEET NUMBER 35 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

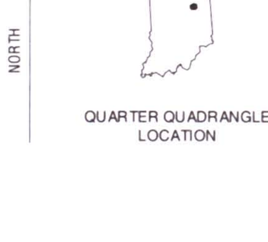
1 MUNCIE EAST NE (SHEET 27)
2 FARMLAND NW (SHEET 28)
3 FARMLAND NE (RANDOLPH COUNTY)
4 MUNCIE EAST SE (SHEET 34)
5 FARMLAND SE (RANDOLPH COUNTY)
6 MOUNT PLEASANT NE (SHEET 41)
7 MODOC NW (SHEET 42)
8 MODOC NE (RANDOLPH COUNTY)

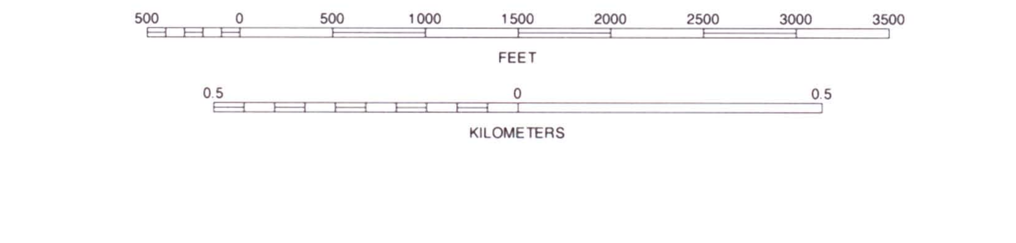
INDEX TO ADJOINING 3.75 MAPS

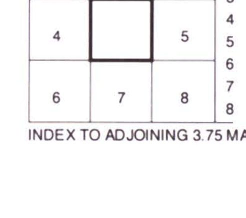
FARMLAND SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 35 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

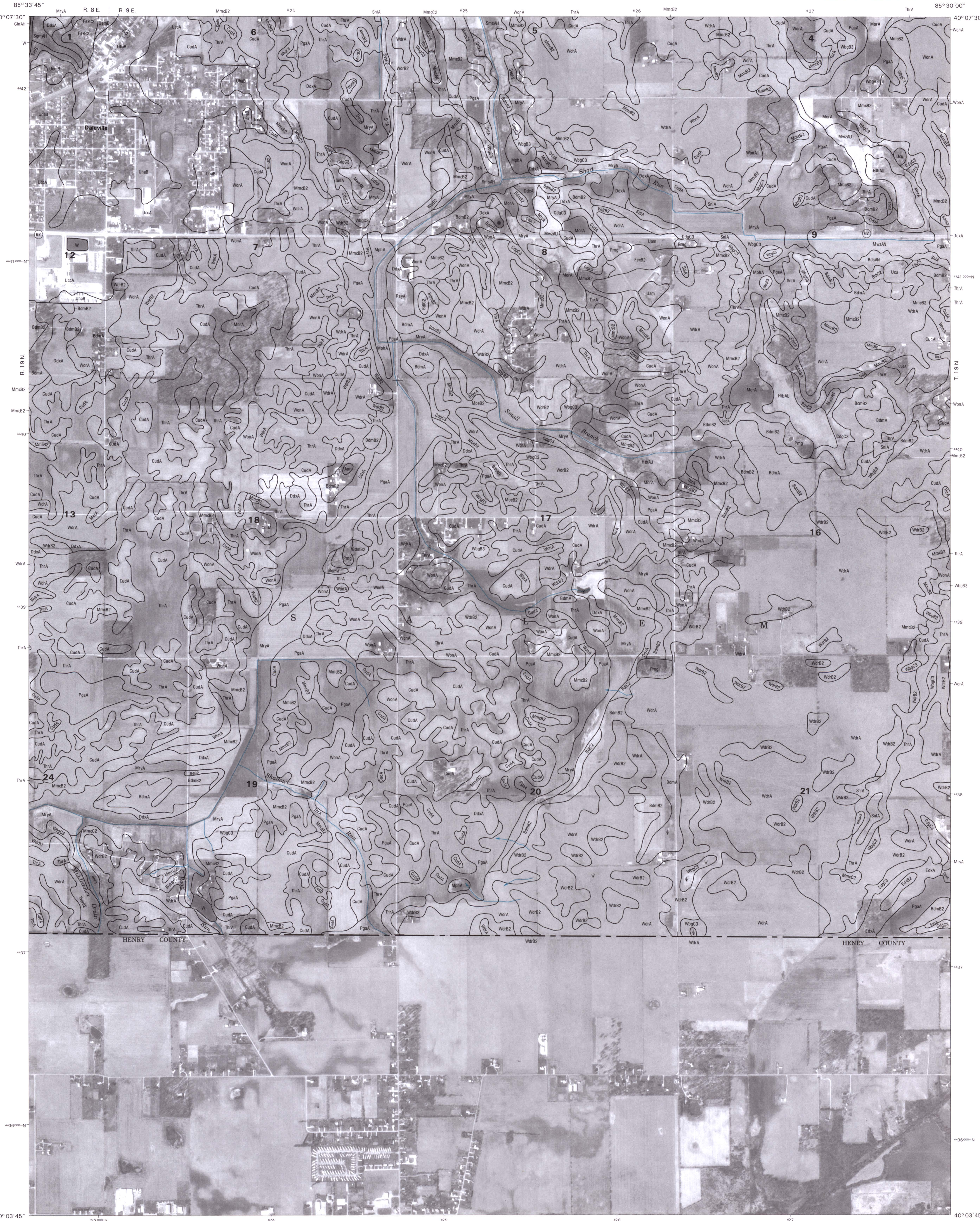






1 ANDERSON NORTH SE (MADISON COUNTY)
2 GILMAN SW (SHEET 29)
3 GILMAN SE (SHEET 30)
4 ANDERSON SOUTH NE (MADISON COUNTY)
5 MIDDLETOWN NE (SHEET 37)
6 ANDERSON SOUTH SE (MADISON COUNTY)
7 MIDDLETOWN SW (HENRY & MADISON COUNTIES)
8 MIDDLETOWN SE (HENRY COUNTY)

INDEX TO ADJOINING 3.75 MAPS



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 GILMAN SW (SHEET 29)
2 GILMAN SE (SHEET 30)
3 MUNCIE WEST SW (SHEET 31)
4 MIDDLETOWN NW (SHEET 36)
5 SULPHUR SPRINGS NW (SHEET 38)
6 MIDDLETOWN SW (HENRY & MADISON COUNTIES)
7 MIDDLETOWN SE (HENRY COUNTY)
8 SULPHUR SPRINGS SW (HENRY COUNTY)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DELAWARE COUNTY, INDIANA
SULPHUR SPRINGS NW QUADRANGLE
SHEET NUMBER 38 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 GILMAN SE (SHEET 30)
2 MUNCIE WEST SW (SHEET 31)
3 MUNCIE WEST SE (SHEET 32)
4 MIDDLETOWN NE (SHEET 37)
5 SULPHUR SPRINGS NE (SHEET 39)
6 MIDDLETOWN SE (HENRY COUNTY)
7 SULPHUR SPRINGS SW (HENRY COUNTY)
8 SULPHUR SPRINGS SE (HENRY COUNTY)

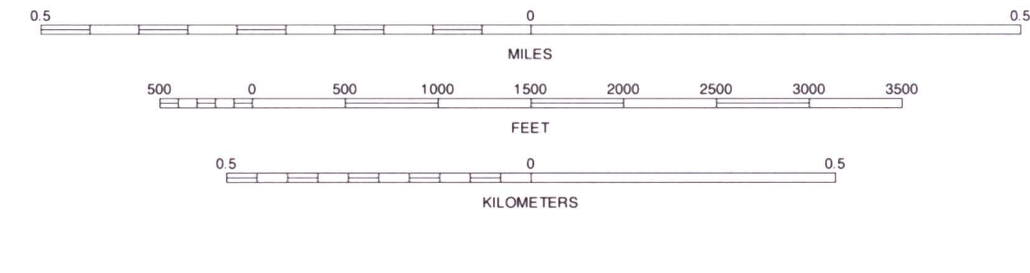
INDEX TO ADJOINING 3.75 MAPS

SULPHUR SPRINGS NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 38 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

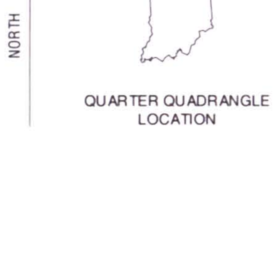
1 MUNCIE WEST SW (SHEET 31)
2 MUNCIE WEST SE (SHEET 32)
3 MUNCIE EAST SW (SHEET 33)
4 SULPHUR SPRINGS NW (SHEET 38)
5 MOUNT PLEASANT NW (SHEET 40)
6 SULPHUR SPRINGS SW (HENRY COUNTY)
7 SULPHUR SPRINGS SE (HENRY COUNTY)
8 MOUNT PLEASANT SW (HENRY COUNTY)

INDEX TO ADJOINING 3.75 MAPS

SULPHUR SPRINGS NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 39 OF 42

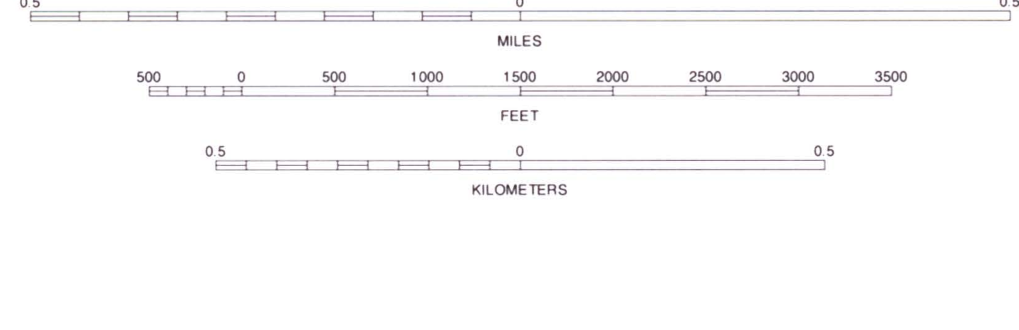
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

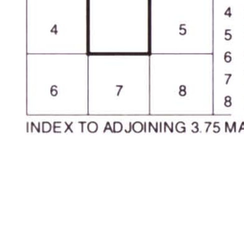
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 MUNCIE WEST SE (SHEET 32)
2 MUNCIE EAST SW (SHEET 33)
3 MUNCIE EAST SE (SHEET 34)
4 SULPHUR SPRINGS NE (SHEET 39)
5 MOUNT PLEASANT NE (SHEET 41)
6 SULPHUR SPRINGS SE (HENRY COUNTY)
7 MOUNT PLEASANT SW (HENRY COUNTY)
8 MOUNT PLEASANT SE (HENRY COUNTY)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

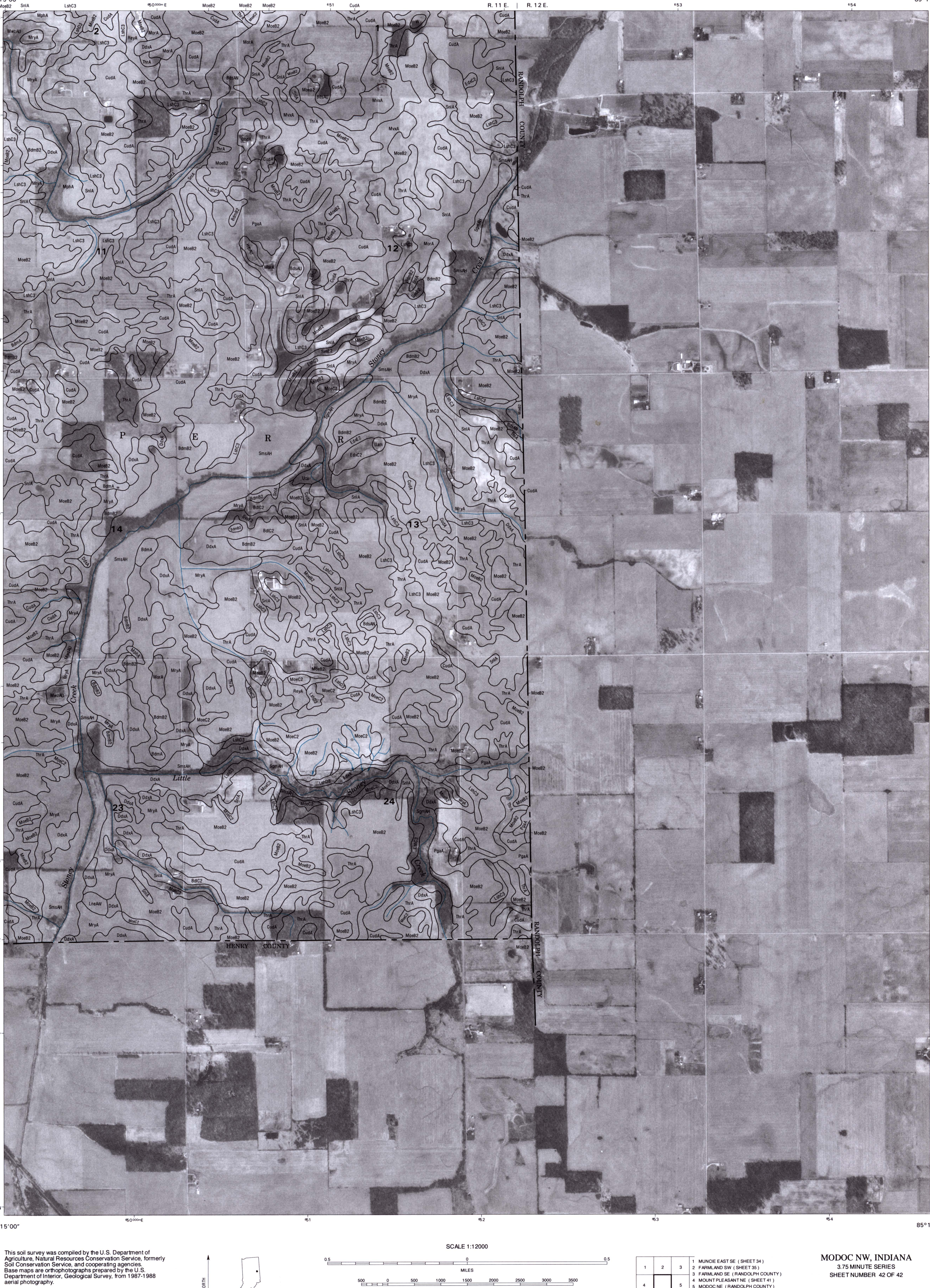
500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 MUNCIE EAST SW (SHEET 33)
2 MUNCIE EAST SE (SHEET 34)
3 FARMLAND SW (SHEET 35)
4 MOUNT PLEASANT NW (SHEET 40)
5 MODOC NW (SHEET 42)
6 MOUNT PLEASANT SW (HENRY COUNTY)
7 MOUNT PLEASANT SE (HENRY COUNTY)
8 MODOC SW (HENRY & RANDOLPH COUNTIES)

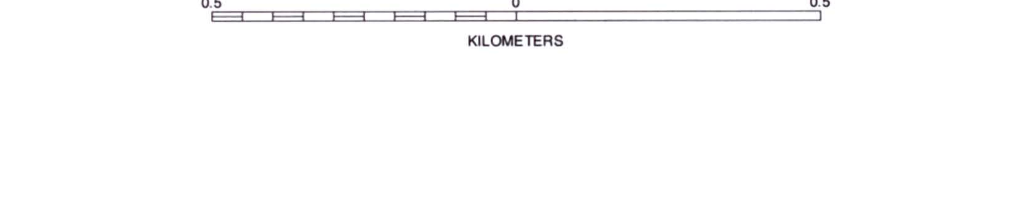
INDEX TO ADJOINING 3.75 MAPS



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1987-1988 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MUNCIE EAST SE (SHEET 34)
2 FARMLAND SW (SHEET 35)
3 FARMLAND SE (RANDOLPH COUNTY)
4 MOUNT PLEASANT NE (SHEET 41)
5 MODOC NE (RANDOLPH COUNTY)
6 MOUNT PLEASANT SE (HENRY COUNTY)
7 MODOC SW (HENRY & RANDOLPH COUNTIES)
8 MODOC SE (RANDOLPH COUNTY)

INDEX TO ADJOINING 3.75 MAPS

MODOC NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 42 OF 42